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Amateur Television Quarterly

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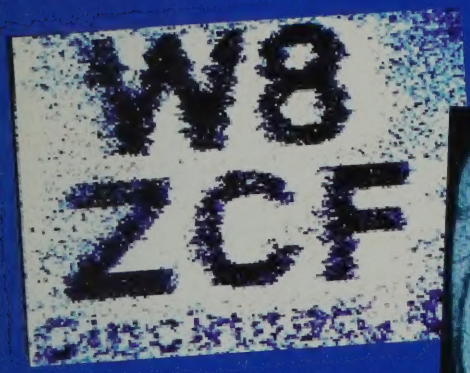
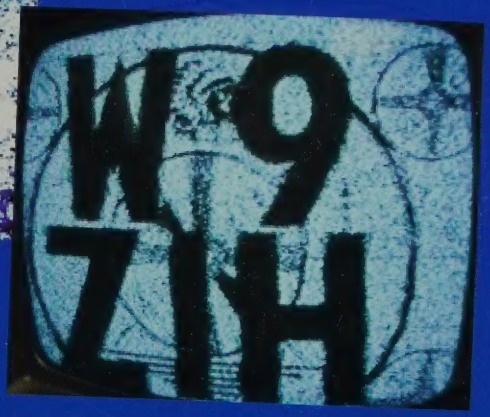
FM ATV TRANSMITTER

STREAMING VIDEO and ECHOLINK

ATV DX PROPAGATION STUDY

Tribute to Gene Harlan WB9MMM





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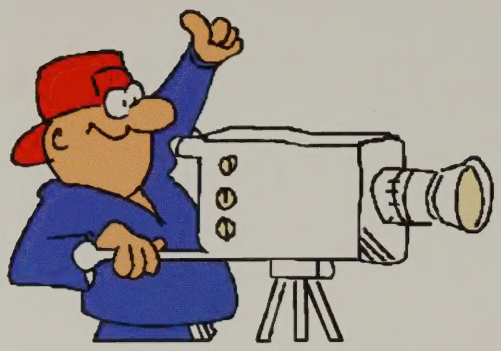

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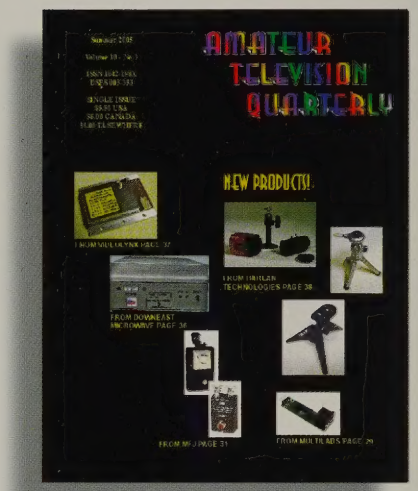

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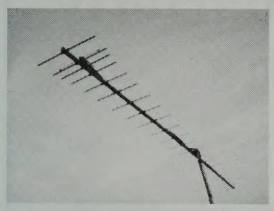

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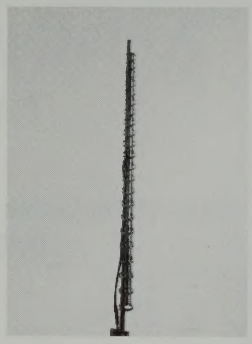

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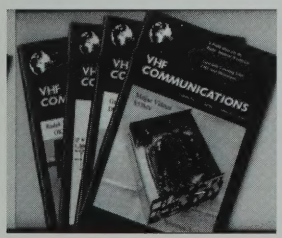

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Amateur Television Quarterly
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A Tribute to Gene Harlan WB9MMM

- Shari Harlan N9SH

Gene Harlan—SK---1944-2008

You could say that ham radio changed Gene Harlan's life.

He received his novice license in 1973. He had quite a hard time learning the code, and then increasing his speed up to 13 WPM for his general class, but Gene made it within the two-year period allowed by the novice license.

During this time he worked at a retail store as an assistant manager. He realized how much he enjoyed electronics, and through the local club here in Rockford, IL met an electronics professor from the community college. Gene decided to return to school to study electronics. After enrolling at Rock Valley College he left the retail field to begin work for a calibration lab. After graduation he was hired as Field Service Manager at W.A. Whitney, where he worked for thirteen years. In 1984 Gene was offered a job as Chief Engineer at Arachnid, which manufactures electronic dart games. He was still employed there when he passed away twenty-four years later.

Gene enjoyed every aspect of amateur radio. He attained his advanced class license so he could work slow scan TV. One year I gave him a Sound Blaster for Christmas. The wheels in his head began to turn. He asked himself, "How can I use this with Slow Scan?" He started programming and after a while, with some errors of course, he came out with his Slow Scan with the Sound Blaster program. With that he was ready to start Harlan Technologies, not really knowing if the program would sell. His first trip to Dayton, Ohio was with this program and he was very excited to be able to speak at the Slow Scan forum. This started a long series of trips to the Hamvention.

Gene always wanted to do a magazine and thought the combination of ham radio and computers would be a great concept. At that time ATVQ was not available so we launched the magazine Cyberham. At the same time we acquired OSCAR Satellite Report. These two publications kept us busy for a while. OSCR was losing subscribers, due to the internet, and Cyberham just could not get enough advertising to keep it going. Just about the time we were ending Cyberham, Henry Ruh called to ask Gene if he wanted ATVQ. After some discussion we decided to take it over. Gene's first issue was the Summer 1997 issue. Thus began a love affair with ATV. Gene liked every aspect of amateur radio, but this mode fast became his passion.

The magazine was a great joy to Gene. He always enjoyed getting the articles from the different writers and then laying the magazine out. He had plenty of articles and fillers thanks to all the ATV guys on the internet. He really liked to get that first box of magazines so he could open it and see the finished product. The advertisers were very loyal as well as the stores that carried the magazine.

The advertisers were very loyal as well as the stores that carried the magazine.

Gene was the driving force behind the ATV repeater here in Rockford. We have a small group of guys here that are interested in ATV. Gene always wanted the group to grow and become active in emergency communications. He was also active in our local radio club, the Rockford Amateur Radio Association, serving as President two times, Treasurer, and during the last year as Vice President. Music was a big part of his life so when he wasn't promoting ATV he was playing tuba for four bands.

Then came January 3, 2008; the day our lives were changed again. This was the day that Gene received the diagnosis of ALS. Never in a million years did we believe that the disease would move so rapidly. Gene tried to keep going as usual as the disease took its toll on his body. We made the trip to Dayton in 2008 but it was very hard. He could still walk with a walker, but the Hamfest would have been too much, so he rode around on a scooter. As the disease affected his right side it became too dangerous for him to drive. He began working at home for Arachnid by the end of June. We ordered his power wheelchair that month and by August, he could no longer walk.

We set up his "office" in the kitchen where he was able to have his laptop. He was able to continue emailing his friends and get articles for the fall issue of ATVQ. I knew that the issue would be his last. I am glad that Bill Brown, WB8ELK, and Mike Collis, WA6SVT, have stepped forward to take over where Gene left off. I am very proud of what the publication has become and proud of Gene for the job he did as publisher.

Gene died at 6 AM on November 26th, 2008, eleven months after his diagnosis. His death has left a huge hole in the amateur radio community and he will be missed by everyone.

ATVQ

DX Propagation Study

- Farrell Winder W8ZCF and Ron Stefanskie W9ZIH

A carefully observed daily DX ATV reception experiment on 70cm has been demonstrated to be more reliable than expected.

In the spring of 2008, ATV contacts were made between W9ZIH and W8ZCF, a distance of 307 miles. Contacts continued until May 2008, when W9ZIH suggested that W8ZCF begin transmitting a video ID continuously for 5 minutes on a regular evening schedule starting at 9:10 PM EST and then W9ZIH would transmit for 5 minutes beginning at 9:15 PM.

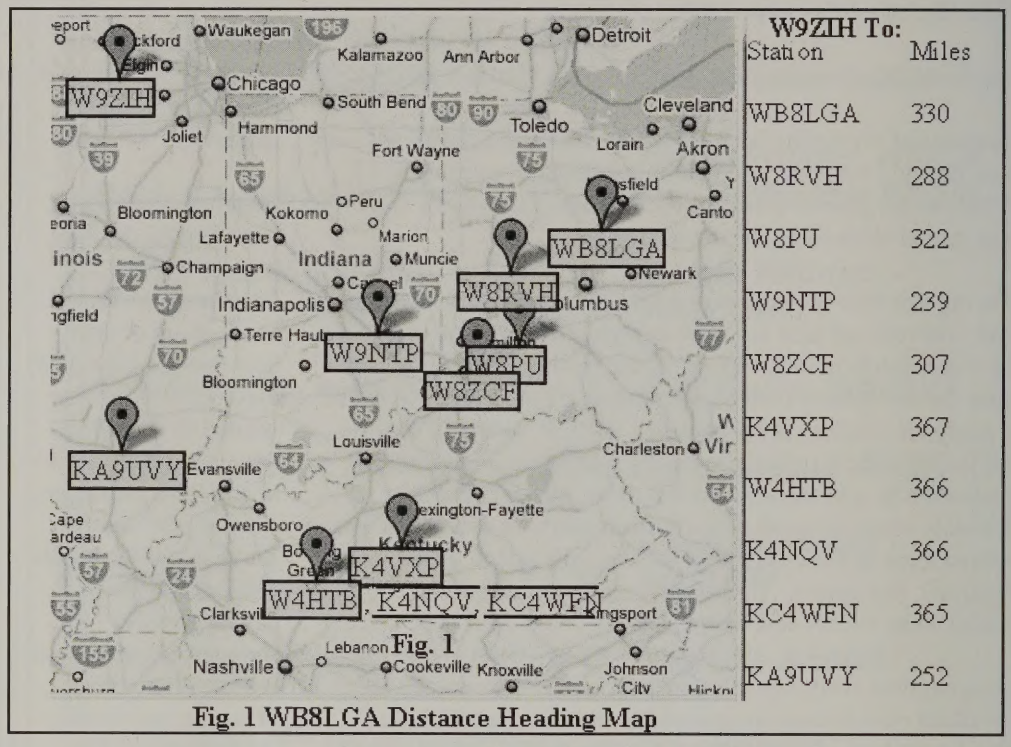

Fig. 1

Fig. 1 WB8LGA Distance Heading Map

Careful tuning was made by each station during the 10-minute interval. The schedule was set up for every day with a Sunday option and continues as of this writing nearly eight months later. The consistency of reception has been much better than expected. Both stations have been able to receive viewable video every day, except for non-operational periods due to weather or other factors. Signals have always emerged at both stations, but sometimes take one to three minutes to emerge from a "snowy" condition to a buildup of P-2 to P-3 peak reception.

Part of the success of these experiments is due to the power of approximately 400 watts transmitted by each station along with good antennas. W8ZCF uses a pair of vertically stacked K1FO antennas and W9ZIH has a stack of four K1FO's. It is also believed that the length of observation is a key factor assuring that the propagation is fully tested. We've found that short-term propagation varies substantially over a period of from one to three minutes, and time is needed to ensure the most favorable peak response. Most of the time, it is believed that the two-way reception is a non-enhanced condition except for apparent aircraft reflections which often does show an enhanced "pulsed" type signal raising reception by one or two P-units. **Photos 1** and **2** show the typical daily images received at each station.

The P-levels referenced above are mostly observed using a 70 MHz SAW Filter with a low bandwidth setting. (P- levels can be improved by at least one or possibly two P-units with the filter).

In addition to the experiment described, there is a group that also tries contacts with W9ZIH in the morning, starting at 7:45 to 8:00 AM EST and in the evening starting at 9:20 PM. The current most active stations are displayed on WB8LGA's Distance/Heading Program map (see **Figure 1**).

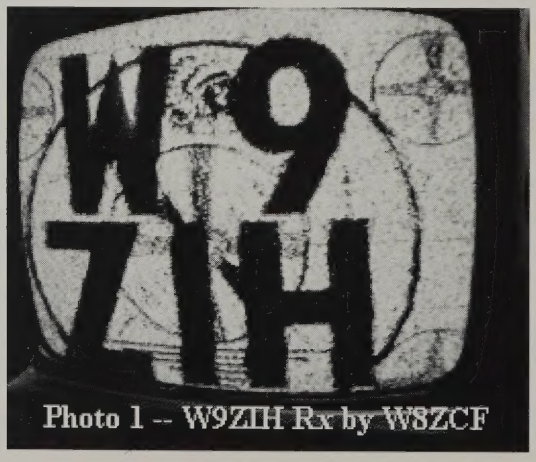

Photo 1 -- W9ZIH Rx by W8ZCF

Photo 2 W8ZCF Rx by W9ZIH

WB8LGA's web page for the map is at:

http://home.columbus.rr.com/cbeener/GMapATVQ.html

This website may be used to add your own station to the list. Many times, two-way video contacts are possible to W9ZIH, even with those running power levels of 50 watts or less.

Note that distances from W9ZIH for the current list range from 239 to 366 miles. These stations are W4HTB, K4NQV, KC4WFN, K4VXP, W8RVH, W9NTP, KA9UVY WB8LGA and W8PU.

W9ZIH has a setup for detecting 70 cm ATV carriers using an ICOM R7000. Carriers have been detected almost 95% of the time on those listed if observed over several minutes. However, it takes a signal level of about S 9 + 30 db to register a picture on a TV screen.

Other stations are welcome to join these experiments to/from W9ZIH or in contacting the listed stations. All stations are on 439.25 MHz, except W9ZIH who transmits on 436 MHz to avoid interference. Voice coordination is made on 144.34 MHz starting around 7:00 AM, 3930 KHz beginning around 7:45 AM and on 1995 KHz at about 9:45 PM, all times are in EST.

Video contacts are much more likely after several minutes of persistent observation is made to detect the transmitting station.

Use of the latest techniques of filters and coordination by using Camstreams with text messaging will be helpful. Check, for example:

http://ka9uvy.camstreams.com/ and **http://wb8lga.camstreams.com/**

Note that if Bob, KA9UVY or Chuck, WB8LGA have video active on their Camstreams, then you will be able to see your picture live, if they receive it!

SEE you on ATV!

Note - - - For several weeks W9ZIH has experimented with CW on 1296 MHz. Almost daily contacts have been exchanged with W4HTB and also frequent contacts have been made with W8RVH. This experiment will be covered in a future report.

ATVQ

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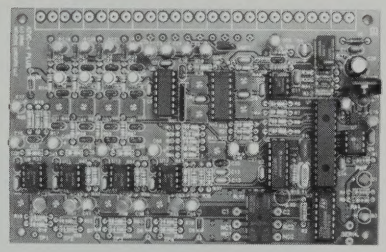

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QRO Video Modulator - Part 2

- Dwight Raddatz, P.E. WA9EUN

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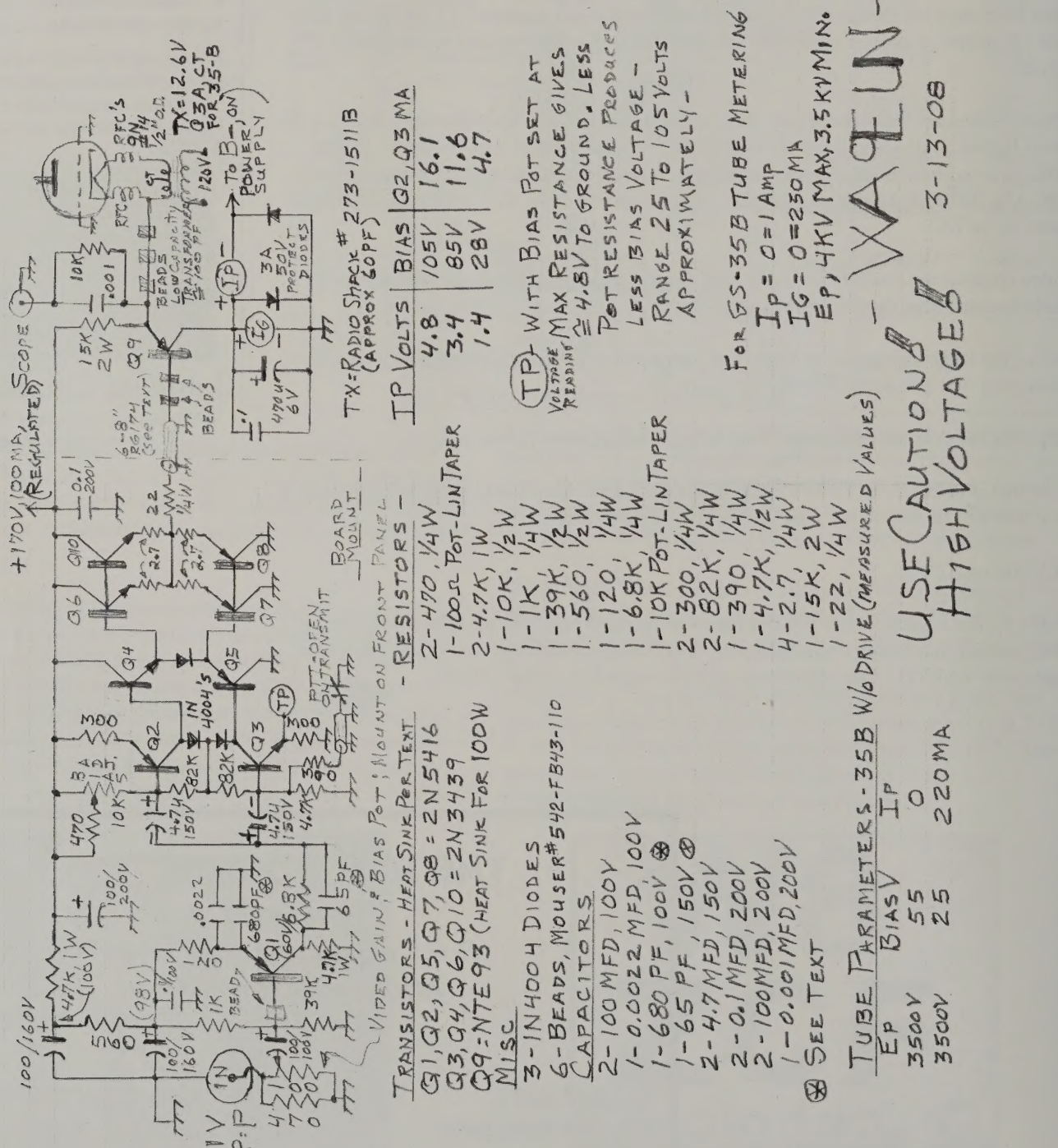
Plano, IL 60545

email: dbraddatz@netzero.com

A high power video modulator was shown on page 18 of the Fall 2008 issue of ATVQ. This month I'd like to finish with the schematic diagram and part's list. As was mentioned in the Fall issue, please remember that linear tube amplifiers have deadly high voltages, so CAUTION must be employed at all time.

ATVQ

QRO=VIDEO CATHODE MODULATOR



TRANSISTORS - HEAT SINK PER TEXT
Q1,Q2,Q5,Q7,Q8 = 2N5416
Q3,Q4,Q6,Q10 = 2N3439
Q9 = NTE93 (HEAT SINK FOR 100W)

MISC
3 - 1N4004 DIODES
6 - BEADS, MOUSER #542-FB43-110

CAPACITORS
2 - 100 MFD, 100V
1 - 0.0022 MFD, 100V
1 - 680 PF, 100V ⊛
1 - 65 PF, 150V ⊛
2 - 4.7 MFD, 150V
2 - 0.1 MFD, 200V
2 - 100 MFD, 200V
1 - 0.001 MFD, 200V
⊛ SEE TEXT

RESISTORS -
2 - 470, 1/4W
1 - 100Ω POT-LIN TAPER
2 - 4.7K, 1W
1 - 10K, 1/2W
1 - 1K, 1/4W
1 - 39K, 1/2W
1 - 560, 1/2W
1 - 120, 1/4W
1 - 6.8K, 1/4W
1 - 10K POT-LIN TAPER
2 - 300, 1/4W
2 - 82K, 1/4W
1 - 390, 1/4W
1 - 4.7K, 1/2W
4 - 2.7, 1/4W
1 - 15K, 2W
1 - 22, 1/4W

IP VOLTS	BIAS	@2,@3 MA
4.8	105V	16.1
3.4	85V	11.6
1.4	28V	4.7

(TP) WITH BIAS POT SET AT VOLTAGE READING MAX RESISTANCE GIVES ≅4.8V TO GROUND. LESS POT RESISTANCE PRODUCES LESS BIAS VOLTAGE - RANGE 25 TO 105 VOLTS APPROXIMATELY -

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EP	BIAS V	IP
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3500V	25	220MA

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- WA9EUN -
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The Tech Guy is IN

- Mike Collis WA6SVT

P.O. Box 1594
Crestline, CA 92325

email: wa6svt@atvquarterly.com

Q. How can I adjust my AM ATV transmitter so I properly drive my new amplifier and not have my picture roll?

A. The basic answer is to set the RF output level of the exciter or transmitter so that the amplifier is operating within its linear range. That range is about 70 to 80 % of the saturated amplifier's output (sync tip level). As most ATVers know, AM ATV peak power is during sync time and most watt meters only measure average power.

Usually what is done is to remove the video from the transmitter and mark the pedestal pot's current position if your transmitter is working well while running barefoot. Then advance the pedestal pot for maximum output carrier with no video. Turn off the transmitter and connect the amplifier to the transmitter output and move the wattmeter to the amplifier output.

If your transmitter is one of the newer PC Electronic units or Video Lynx that have an RF output adjustment, adjust the pot for max output, note the output level and then turn the power down till you are now running about 80% of saturated output. Turn the pedestal pot back to its original setting which is usually about 60% saturated max output. Apply video and you should be very close to optimum performance. Some transmitters have sync stretching and can allow up to 90% of the saturated output during sync time. Check your transmitter's manual for exact details for setup if you have it.

If you have a demodulator, a line tap and attenuators, you can sample the power output and set the RF level so that the demodulator is not over driven. Check the video on a scope, or better yet a waveform monitor, and look for -40 IRE units sync and 100 IRE units white on a color bar pattern or other known video test pattern that can provide the 100 unit white. You may be able to turn up the RF drive a bit more, but probably not much or the sync will compress.

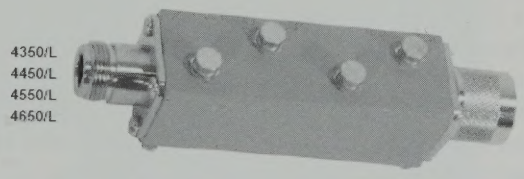
If we take a 100 watt rated amplifier it is normal to have about 80 watts sync and depending on what contrast image the camera is on to measure 30 to 55 watts average. It is very common to see new ATVers try and push a transmitter or amplifier to saturated power during sync and still ask why their meter is not reading full power. Try to resist this since you will need the headroom as most AM ATV transmitters run 4.5 MHz subcarrier so if an amplifier is ran into saturation, during sync time you will not have subcarrier and the same goes for over modulation (video to high), you need headroom there too.

One last thing to note is that some amplifiers may need more input power than the transmitter can supply. In that case add a driver stage rather than turning up the pedestal pot for more power out and then turning up the video or your modulation will be distorted.

Q. Hank W4HTB writes that he is having problems with the 3rd harmonic of his ATV repeater transmitter at 421.25 MHz getting into the 1280 MHz ATV repeater input. He recalled that the Winter 1992 issue of ATVQ had an article about a trap filter that might work.

A. Trap filters are usually sharp and may not be the best solution to remove an entire 6 MHz wide TV channel out of the receiver. It would help at either the visual carrier or aural carrier. The trap can be a T-connector with an open coaxial ¼-wave stub at 1280 MHz in series with the transmitter feedline.

A lowpass filter would be a better solution. The EMR 4550/L from EMR Corp. (**http://www.emrcorp.com/** *Note: click on "Additional Accessories"*), as well as other companies, make small 250 watt rated three-pole lowpass filters.



Most of these filters are housed in a four inch long Pomona box with a male "N" connector on one end and a female on the other. This makes the hookup foolproof. To roll your own, one needs test equipment, a network analyzer or spectrum analyzer, and a sweep oscillator to tune them properly.

The layout is straightforward with 2 coils made with #18 enameled wire, ¼-inch ID for input and output series coils (1 full turn each), and one center coil with 2 turns. Use Johannson 0.6 to 10 PF piston capacitors (four are needed). Place one cap at the input, one between the first and 2nd coil, one between the 2nd and third coil, Secure a final cap at the output connector.

With the lowpass filter, you can transmit anywhere in the 70CM band and keep out of the 23 CM band.

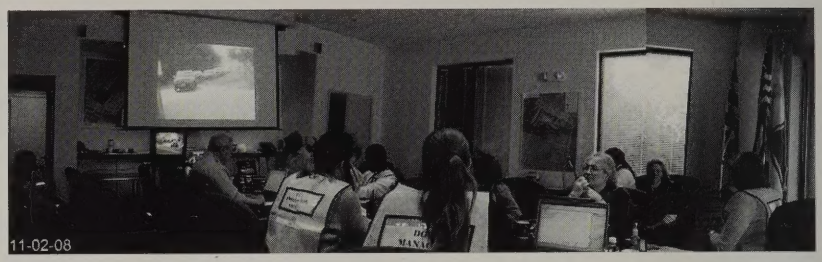
73s,
Mike the Tech Guy

If you have any questions for the Tech Guy, send them to Mike Collis WA6SVT at wa6svt@atvquarterly.com or P.O. Box 1594, Crestline, CA 92325

The CATS Flu Clinic ATV Event

- John B. Watson NY3K *email: ny3k2004@yahoo.com*

CATS ASSIST IN HOWARD COUNTY, MD FLU CLINIC



Members of Chesapeake Amateur Television Society (CATS) assisted the Howard County (Maryland) Health Department in their annual Drive-thru-Flu Clinic on Sunday, November 2, 2008.
This is an effort by Howard County with dual purposes. First, the effort tests the ability of county police and health officials to react to a possible pandemic that might hit the area. Second, it makes available to anyone who desires it, a free vaccine to protect them in the current flu season. As for the CATS, it also sounded like an ideal exercise to test our abilities to provide ATV assistance to local authorities in the event of a real catastrophe. An ideal fit for us, which had the blessing of county authorities.

All that people interested in receiving the free flu inoculation needed to do was arrive at one of three sites and fill out a brief form. Typically, the individuals came by the carload, but some organizations, such as churches, brought groups by van or bus. Those receiving shots would stay in their vehicles, fill out their forms, and then receive an injection or dose of flu mist while comfortably seated in their rides.

With almost 4000 inoculations provided over a four-hour time frame this year, traffic monitoring and control was quite important. At the health department headquarters, a large conference room was designated as the command center for the entire exercise. This is where the CATS provided significant assistance. It is also where the CATS set up its headquarters location for the event

There were two inoculation sites in large parking lots, off public roads, located within less than a mile from health department headquarters in Columbia, Maryland. The third site was located about 13 miles over R.F. blocking hilly terrain, at the Howard County Fairgrounds (where many a hamfest has been held over the years). The "Incident Commander" and health department officials were located there as well as appropriate police command.

Prior to the start of the event, we placed two "M-Squared" stacked UHF loop antennas using a mag mount base on a metallic structure on the roof and dropped 100 feet of Belden "9913F7" coax off the roof. I have found this antenna to work very well both for mobile and base station ATV operation. It has solid gain and is horizontally polarized.

We also mounted a 223 MHz omnidirectional antenna with 50-Ohm coax attached in a similar fashion. We chose that simplex frequency (in addition to the ATV audio subcarrier) for voice coordination and control since it presented the least interactive QRM, and in our area, that band is pretty quiet and we would not disturb anyone. The cables were run on the floor through the fron t door of the health department building, then on into to the conference room. Appropriate measures were taken to make sure the cables were fully taped to the floor and would not cause a safety hazard.

In the conference room, we had a PC Electronics "TC70-20S" ATV transceiver that we fed into one of the conference room TVs. We also had an Alinco "DR-235" 220 MHz transceiver. We located this equipment off to the side, away from the conference room table, to be as unobtrusive as possible to the officials taking part in the event. Manning this equipment in the conference room were Bill, N3DCI, and this author.

We had two mobile ATV operators, Al, KZ3AB (ARRL MD-DC Assistant Section Manager), and Ken, K3UQQ (CATS President). They each had PC Electronics ATV transceivers in their vehicles (as well as 223 MHz transceivers). Al was using an M Squared "Model 440-18" 18 element ATV beam strapped horizontally to the roof of his vehicle (see the included picture--kind of overkill, but it was an available antenna) and Ken was using a homemade eggbeater ATV antenna. They were responsible for feeding ATV to the command center on 434 MHz from the two flu shot control points within a mile of the commanding viewers. Jim, WI3N (ARRL MD-DC Section Manager), provided significant supervisory assistance to the group as well as spelled the mobile operators when needed.

As for the "remote" site at the fairgrounds, we believed that simplex ATV would not provide the kind of signal we would need. Absent the presence of adequate ATV repeater coverage for that area, we employed the use of the Internet and a program called "Skype" (go to www.Skype.com for the free download).

Another Ken, KB3IIE (ARRL Public Information Officer (PIO) for Prince George's County (MD)), stationed himself at a strategic location, and using his laptop, a laptop camera, and a device that plugs into the laptop to connect it to the Internet through cell phone signals, he sent P5 video and perfect audio back to our headquarters. In the conference room, we used a laptop computer with "Skype" installed to receive his Internet transmission, and fed that into an overhead projector so it could be shown on a big screen at the front.
The "Incident Commander" was located at the head of the conference table (out of the picture) to the right of the photagrapher. You might also note the advertisement for ATV and the CATS on the board just to the right of the TV behind the officer pointing at the camera taker. Bill took the picture from the location in the conference room where our ATV and 223 MHz transceivers were set up.

We presented the "Incident Commander" and her staff, as well as the police officials, with non-stop solid P5 video of the traffic patterns as people lined up to receive their vaccinations. This allowed the officials to have traffic ro uted or rerouted so that no one location was overloaded. It also provided an important visual aid to follow the pace of the event. We directed our remote cameras to different locations as command occasionally requested. The officials were in constant touch by radio with their staffs on the front line throughout the event but found the video we provided a very useful additional dimension. They were very appreciative of our service.

At the close of the event, we furnished helpful feedback to event organizers for future use. We also tabulated what we learned from our own performance provide even better service in future mobile events. All in all, we would call this exercise a resounding success all the way around.

ATVQ

FM TV Exciter

- *Dwight Raddatz, P.E. WA9EUN*

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Plano, IL 60545

email: dbraddatz@netzero.com

This exciter is being used by many amateurs in North Eastern Illinois to work duplex ATV. The transmitter is capable of driving a three watt brick amplifier, covers the 23 and 33 cm bands, maintains 250khz frequency stability while transmitting frequency modulated video and audio signals that rival commercial satellite signal quality! I am currently using this exciter to drive a three watt brick which drives a single 2C39 tube which drives my commercial 200 watt transmitter on 1280mhz. Another exciter drives the 912 mhz amplifier to 75 watts.

The complete exciter is centered around Mini-Circuits POS1400 Voltage Controlled Oscillator. The oscillator module can be mounted on the circuit board as outlined below. The pre-emphasis circuit, Deviation/gain pot, associated capacitors and resistors and the Frequency control pot can all be mounted on the front panel, the entire circuit along with the power supply can be installed in a 5 x 3 x 6 inch deep cabinet.

The NTSC video and audio signal which are combined in the Video Enhancer/audio mixer, (Enhancer article featured in the last issue of Amateur Television Quarterly), is applied to the pre-emphasis circuit. The Gain/deviation potentiometer sets the amplitude of the signal applied to the VCO. The Frequency potentiometer sets the bias level which, in turn, establishes the oscillator's frequency. This VCO, when used with the stated circuit does not require additional amplification if a one volt P-P signal is applied to the input.

The output of the oscillator, Pin #2, is loaded with a 75 ohm resistor in series with an 18 ohm resistor.
The 18pf disk ceramic capacitor has a negative temperature coeficient of N150 which also adds stability to the oscillator. A monolithic amplifier, MAV11 is employed to isolate the output loading from the oscillator which further stabilizes the frequency. The db pad made up of three 68 ohm resistors was needed to prevent overdriving the three watt output brick. The attenuator can be eliminated if more power is desired however, the lower frequencies may not be reached since there is minute circuit loading applied to the output of the VCO by the monolythic amplifier.

Even though this circuit has been in operation since 2002 and frequency stability hasn't changed, it is advised to keep tab on the output frequency, especially when running high power. In most cases, a 250khz frequency tolerance isn't noticable when running a 15mhz FM video signal with 4.5-6.8 mhz audio subcarrier. Good frequency stability and linear signal deviation were the main requirements for this design.

Adjusting the transmitter is simple. First, adjust the frequency control for the desired frequency..with the Frequency pot fully counter-clockwise (minimum voltage on pin 8 of the VCO) the oscillator should reach 912mhz. Fully clockwise will produce 1400mhz. Next, increase the Gain control until quality video is received. When using the Video Enhancer/mixer the signal can be adjusted to the standards as outlined by WA6SVT in the last issue of Amateur Television Quarterly. Maximum deviation is in excess of 15mhz which covers the use of narrow band as well as commercial FM satellite receivers. One must witness the quality of the transmitted signal to fully appreciate this simple exciter.

Special thanks is give to NK9M, W9ZIH, K3SIW, KB9PWQ and N9GLL who shared in the development of this transmitter. I hope you have as much fun with the exciter as we have!! 73,

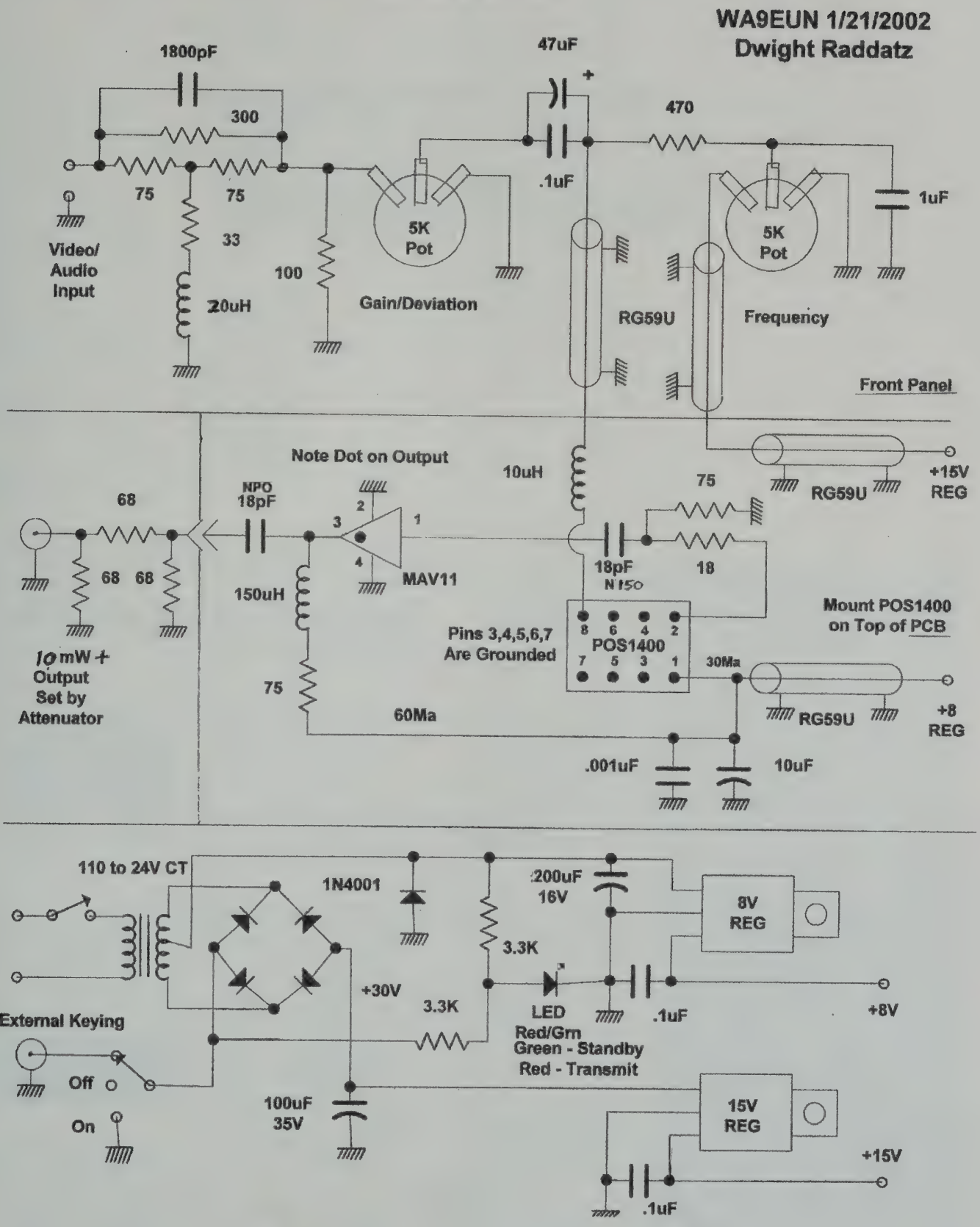
WA9EUN
Dwight Raddatz, P.E., Ph.D

PARTS LIST

2 ea RCA Sockets	1ea 300 ohm ½ watt
2 ea 5K pots, linear taper	4 ea 75 ohm "
1 ea 20uh choke	1 ea 33 ohm "
1 ea 10uh choke	1 ea 100 ohm "
1 ea 150uh choke	1 ea 470 ohm "
1 ea BNC Socket	1 ea 18 ohm "
1 ea 110 to 24V CT Transformer, 100 ma	
1 ea Power cord	3 ea 68 ohm ½ watt
1 ea Toggle switch, SPST	2 ea 3.3k "
1 ea Toggle switch SP3T	1 ea 1800pf cap NPO
1 ea Red/green LED	1 ea 47uf, 16V
1 ea 7808 Regulator	3 ea 0.1uf
1 ea 7815 "	1 ea 1uf, 16V
1 ea 3 x 3" PC Bd, single foil	1 ea 18pf, NPO
1 ea 18pf, N150	1 ea 0.001uf
1 ea 10uf, 16V	1 ea 100uf, 35V
1 ea 200uf, 16V	
1 ea MAV11 Monolythic Amp (Mini-Circuits)	
1 ea POS-1400 VCO (Mini-Circuits)	

Mini-Circuits phone # 417-335-5935

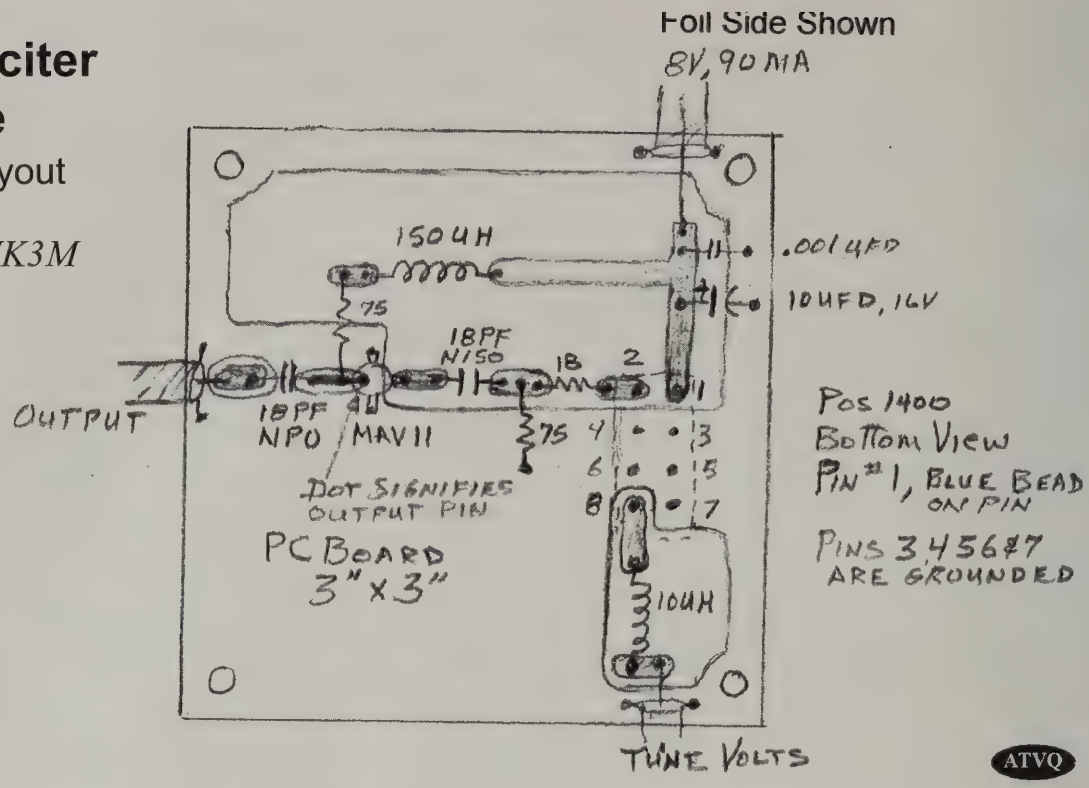
FM-TX 912MHz & 1280MHz
Exciter Module



FM ATV Exciter Module

PC Board Layout

- Courtesy of NK3M



bob
basic overlay board

Decade Engineering's fourth generation low-cost video information overlay generators make last century's 'OSD' products look antique.

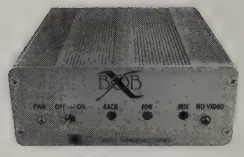
BOB-4 and XBOB-4 let your micro-controller or PC display text and vector graphics on standard TV monitors. With huge user-definable character sets, BOB-4 also supports bitmap graphics and multiple languages. BOB-4 generates background video on-board, or automatically genlocks to your video source and superimposes graphics over the image. Printable characters and commands drive BOB-4 through a fast RS-232 style port, much like a serial terminal or printer.

NTSC and PAL video standards are supported via software command. The free BOB-4 Conscriptor PC program simplifies configuration and font management.

XBOB

Display text and graphics from your PC on standard TV monitors.

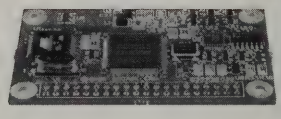
- Simple hookup; requires just 9-12VDC, RS-232 data, video I/O
- Prints plain ASCII text in default configuration
- Display density up to 480x240 (NTSC) or 480x288 (PAL)
- Stand-alone operation for video ID, target reticle, etc.
- Automatic vertical scrolling
- Text crawl (single-line smooth horizontal scroll)
- Expanded memory for custom fonts & bitmap graphics



bob-4h

Display text and graphics from your microcontroller on standard TV monitors.

- Tiny and rugged; industrial temperature option
- Simple hookup; requires just 5VDC, data, video I/O
- Asynchronous 'TTL-232' and SPI control ports
- Prints plain ASCII text in default configuration
- Display density up to 480x240 (NTSC) or 480x288 (PAL)
- Text crawl (single-line smooth horizontal scroll)
- Off-board memory expansion for fonts & bitmap graphics
- Software-controlled digital outputs (5)



DECADE ENGINEERING

Ph: 503-743-3194 Fax: 503-743-2095 Turner, OR, USA **www.decadenet.com**

Streaming Video with Echolink

- Don Hill KE6BXT

The Amateur Television Network (ATN) in California is using EchoLink to allow Internet viewers a way to "talk back" to the friendly faces that they see on the Amateur Television Network's linked ATV repeaters.

The ATN has been streaming video from one or more of its Amateur Television repeaters for several years now. This allowed its members to view the repeater activity when out of the local area (such as when members went to the Dayton Hamfest). They could then "check into" the net by using a cell phone and calling one of the members in Southern California and then having them relay their message over the ATV repeater system. Now with the ATN-EchoLink interface they have a talk back channel without having to use the phone.

The ATN-EchoLink interface is used in conjunction with the ATN-BATC streaming video from the Santiago Pk. repeater in Southern California. You can access the streaming video by going to **http://www.batc.tv/ch_live.php?ch=2&id=139**. If you are new to EchoLink you will need to visit the EchoLink website at **http://echolink.org** and sign up for an EchoLink account before you can use the system. You will need to download the FREE software to run on your computer and VALIDATE your callsign by one of several ways explained on their web site.

Without going into how the Amateur Televisions Network's ATV repeaters are linked, let me briefly explain how the streaming video and EchoLink interface expand the capabilities and reach of the W6ATN ATV repeater located on Santiago Peak

The Santiago Peak repeater is the hub of several linked repeaters. This means that in addition to the ATV input and ATV output links it also has ATV inputs and outputs that are used for linking to the other ATV repeaters within line of sight. It also has a simplex audio receive on 146.430 MHz that is repeated out onto the ATV aural carrier. This is the link used by the EchoLink interface to get audio from the EchoLink system onto the ATV audio coming from the ATV repeater.

Figure 1 shows a simplified block diagram of how the EchoLink and Streaming video interfaces works.

Because any good HAM always listens (and in the case of Amateur Television watches) the output of a repeater before transmitting, I'll explain the video streaming side of the interface first.

The output from the ATV repeater is received and down-converted. The downconverted signal is then passed to a TV tuner and the resulting audio and video signals are sent to a computer running Adobe Flash Media Encoder software. The computer then streams the audio and video to the British Amateur Television Club's server where it is available for viewing by anyone with a computer and Internet browser. The British Amateur Television Club's streaming video website is at **http://batc.tv**. Click on "Members Streams", find KE6BXT in the list and click on "View Stream". At this point you should be able to see and hear the ATVers using the repeater or check for activity before connecting to the EchoLink interface. You should see a screen that looks like the one shown in **Figure 2.**

One of the characteristics of Internet streaming of video is that there can be (sometimes substantial) delays as a result of analog to digital encoding of the packets, transmission time over the Internet, and subsequent digital to analog conversion on the receive end. Because of this you need to keep in mind that what you see is not what is happening on the repeater NOW but what was on the repeater some 15-20 seconds ago. This can be confusing for both the local ATVers that have to wait for an Internet viewer to respond and to the internet viewer that does not want to start talking too soon. With this system the EchoLink user may actually hear two audio streams. The first audio stream will have very little delay from real time but will be out of phase (early) from the video being received. This audio stream is coming over the EchoLink interface. The second audio steam will be delayed 15-20 seconds from real time but will be in sync with the video. This audio stream is coming over the BATC video stream. If it is possible to mute the delayed audio on your computer and listen to the EchoLink audio you will have a much more enjoyable QSO. Another way would be to run two computers, one to monitor the BATC video/audio/chat and the other to talk and listen over EchoLink.

Assuming you have your EchoLink software loaded and running on your computer you are ready to connect and enter the QSO. This is how you would do that.

Within the EchoLink software program you would connect to the KE6BXT-L (subject to change) node. Upon connecting, the EchoLink program will send a signal to the SignalLink USB interface box. The SignalLink acts as an additional sound card for the computer and is the interface between the computer and the radio for mic and push-to-talk functions on the radio. When the EchoLink user goes into TX mode, the SignalLink keys up the 2m radio and puts the EchoLink audio on-the-air.

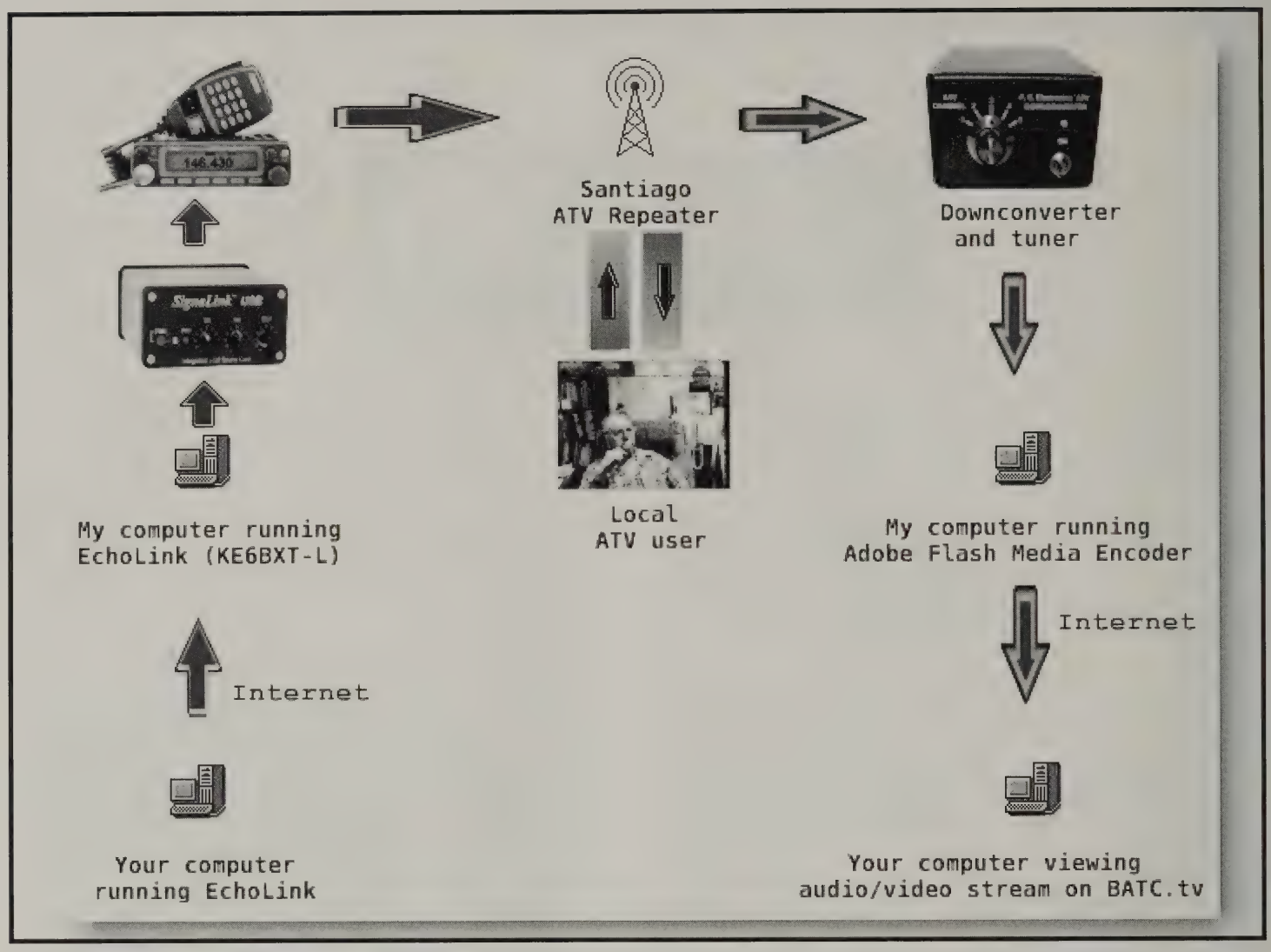


Figure 1. ATN-EchoLink block diagram. Note: There is a 15-25 sec delay in the red arrow loop.

Lessons learned:

When we first set up the EchoLink interface we made two assumptions that later proved to be incorrect. We originally thought that 1) only people that were watching one of our streams would try and talk back using EchoLink, and 2) all of our members and guest that use our ATV repeaters on a daily basis would welcome hearing from and talking to other HAMS that were watching them over one of the internet streams. Oops!!! Wrong on both assumptions. We had hams that would go down the list of available stations or links in the EchoLink directory and make calls in the blind without knowing if the repeater was in use and this led to complaints by those who were talked over. All very understandable. (Nobody enjoys having their QSO interrupted by the "K6xxx CONNECTED beep!", 'HELLO, IS ANYBODY THERE? HELLO, HELLO", and then "K6xxx DISCONNECTED beep!" messages)

Fortunately, EchoLink provides the means to either block specific callsign from connecting or only allowing approved callsigns to connect. The ATN opted to go for only allowing callsigns that have been approved to connect. It is fairly easy to get your callsign added to the approved list and even easier to have it removed.

You can request that your callsign be added to the list of callsigns that can use the ATN-EchoLink interface by visiting the ATN Echolink page at **http://atn-tv.org/echolink**. Once approved you will be able to conduct two way QSOs with the ATVers on the repeater. To be removed from the Approved List you can simply visit the same site and request that you callsign be removed. Another way to have your callsign removed is to have an ATN member raise a legitimate complaint about your conduct or language when using the EchoLink interface.

I would like to thank W7TED, KD6ILO, K8JWT, WB9KMO, and others that helped with testing the system and helped work out some of the initial bugs.

We look forward to hearing from you over Amateur Television Network EchoLink Talkback interface.

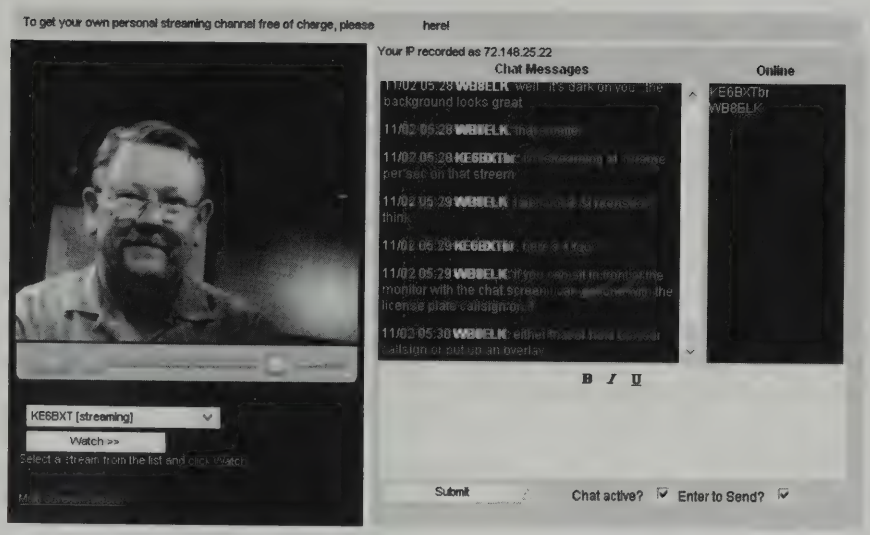


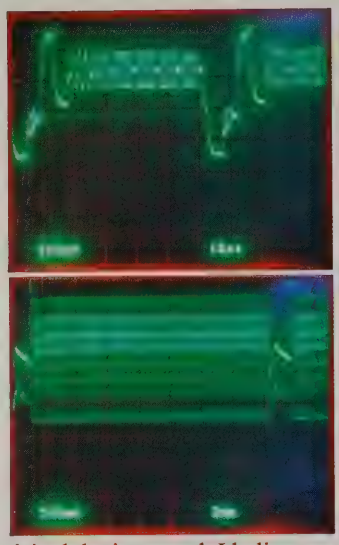
Figure 2. Viewing the ATN ATV repeater over the BATC.tv streaming video.

ATVQ

Comtech 1200 MHz Transmitter Improvements - Part 2

- Art Towslee WA8RMC *email: towslee1@ee.net*

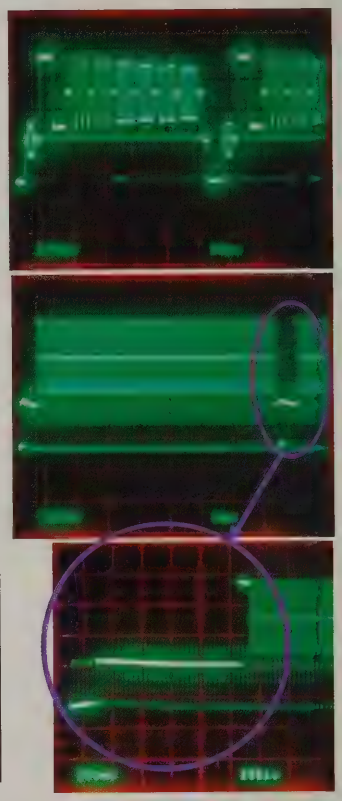
For quite some time now I, as well as others, have known that the video quality in the Comtech transmit and receive modules have problems. The G1MFG modules from Giles correct some of them in the "Gold and Platinum" boards but not all. Since the modules were intended to be used as a pair and not designed for use in the USA, problems arise when we try to use them with the NTSC TV format in repeater service. I became aware of the severity when I used an FM1394TSIM transmit board in our ATV repeater. I was able to clean up the video response problems but never able to boost the low frequency response. As a result, the vertical sync was distorted causing most receivers tuned to the 1260MHz channel to roll. I recently re-visited the issue and, I believe, resolved all of the deficiencies. The following steps will bring this module up to "near broadcast" standards. (The receiver module improvements will be described in a later issue of ATVQ).



The "before" horiz. waveform (left) & after (right). Slight rolloff of high freq. in this multiburst waveform is intentional to limit overall bandwidth.

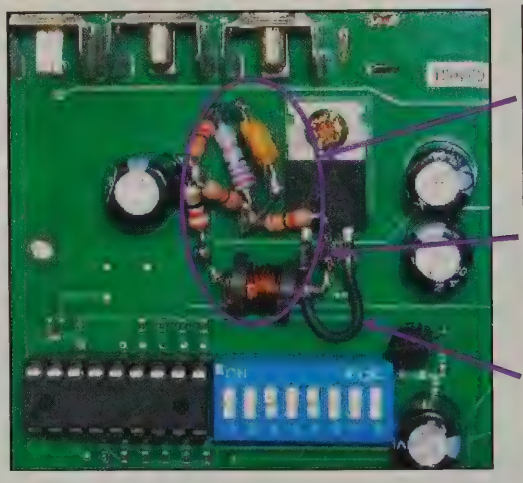
The "before" vert. waveform on left has severe tilt causing rolling in received picture. The corrected vert. waveform still shows some sync tilt but the receiver likes it now.

The expanded vertical sync interval is shown to illustrate it is not as bad as it first looks in the above photo.



There are 5 basic areas to enhance. First, a proper pre-emphasis filter must be added to the input. It's installed in the area occupied by removing the video gain pot on the main board. (video gain will be controlled by the pot inside the module). **Second**, inside the module the 100 pf and 2.7k resistor parallel combination must be jumpered out. **Third**, a .01 mf capacitor must be added across the 39 pf loop compensation cap inside the module. **Fourth**, replace the 4.7k resistor across the 0.12mf cap with a 15k resistor. **Last**, replace the 0.12mf chip cap with a 100pf cap. Details are pictorially shown below and also treated in detail by Barry, VE6ATV, on his web site, http://ve6sbs.sbszoo.com/ve6atv/platinum/mods.htm. The added 0.01mf cap in the module are the same as Barry describes but the pre-emphasis filter, bypassing of the 100pf cap and 2.7k resistor combination, the 4.7k resistor change to 15k and changing the 0.12mf cap to 100pf are new here.

- **Pre-emphasis filter addition** – First, remove the video gain pot on the board next to the regulator. It is not needed because there is another one inside the module. In the space now available, add the filter components using the pot pc pads as the filter input and output. I used the regulator center pin as the ground point as shown in the picture but you can just as easily use the remaining pot pc ground pad. The 470mf video coupling cap is not needed and could also be removed for additional space but it doesn't change the video response either way so I left it in. The components are standard values and tolerances except for the inductor. The inductor is an 18 microhenry coil which can be purchased or hand wound as I did. Use 22 turns of #26 enameled wire on a ¼" dia.ferrite core.

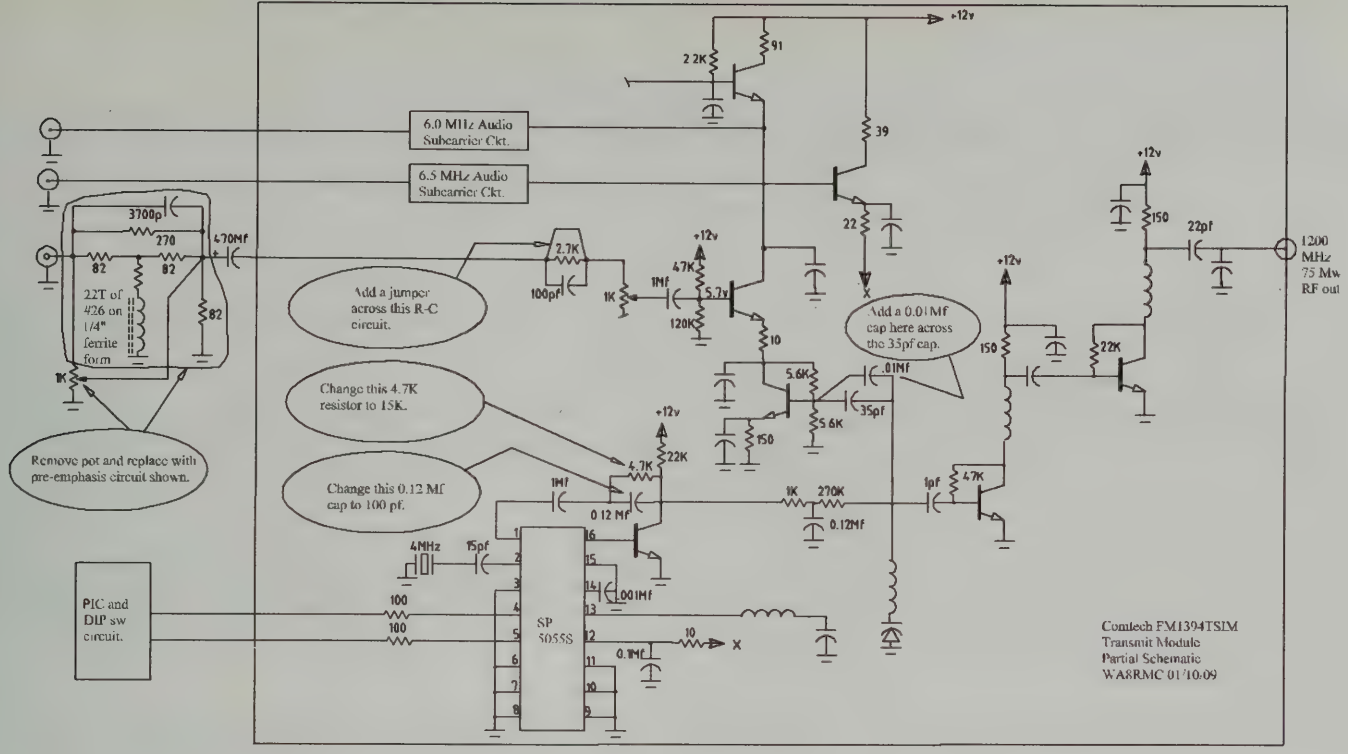


Pre-emphasis filter parts. Note 470mf cap to the left and regulator to the right.

Ground tie point. (reg. center pin)

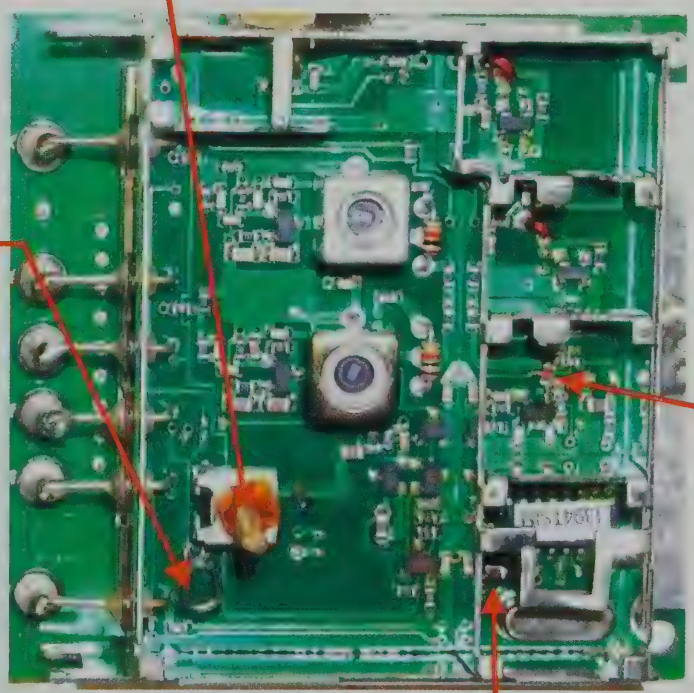
Regulator input-output bypass jumper.

Notice that I also jumpered the regulator input to output. This is required only if you feed the board with regulated +12vdc. If you use a 15vdc "wall wart" or equal, the regulator is still needed. Just remember to provide enough input voltage (+15vdc) for the regulator to work properly. The pre-emphasis filter schematic is shown below.


6.0 MHz Audio Subcarrier Ckt.
6.5 MHz Audio Subcarrier Ckt.
Add a jumper across this R-C circuit.
Change this 4.7K resistor to 15K.
Change this 0.12 Mf cap to 100 pf.
Remove pot and replace with pre-emphasis circuit shown.
Add a 0.01Mf cap here across the 33pf cap.
22T of 26 on 1/4" ferrite form
PIC and DIP sw circuit.
SP 5055S
1200 MHz 75 Mw RF out
Comtech FM1394TSIM Transmit Module Partial Schematic WA8RMC 01/10/09

COMTECH TRANSMIT MODULE PARTIAL SCHEMATIC

Note: You may see an object on the module internal video deviation pot. I glued a small rod to the top of the pot so I could adjust the deviation without opening the module top can. That is your option.



- **Install jumper across R-C parallel combination** – There is a video peaking circuit inside the module adjacent to the internal video modulation potentiometer. It is not required or desired when the pre-emphasis filter is installed. In fact, the video gain lost by the pre-emphasis filter is more than compensated by removing this R-C combination. It is simplest to simply install a small jumper wire across these parts. Do not risk circuit board damage by removing them.

- **Change the 4.7K resistor across the 0.12 mf cap** – Remove the 4.7 k resistor and replace it with a 15k resistor. Also, remove the 0.12mf cap and replace with 100pf. This will re-compensate the loop timing so it will not loose lock. It also makes the circuit more temperature stable. Without the change, the unit may seem to perform well but at warmer environments, it will loose lock and frequency stability. This resistor and cap are located in the compartment with the crystal. Access can be obtained by bending the U shaped frame piece out of the way but use caution, if you are not used to working with surface mount parts, leave it to someone else or don't do it! It is **VERY** close quarters so be careful. I didn't have a surface mount 15k resistor for here so I used a 1/4 w film resistor but this is difficult to place so I don't recommend it!

- **Change phase lock loop compensation capacitor** – The PLL compartment contains a 35 pf capacitor which determines the PLL response time. It is adequate for higher frequencies but over-reacts to long duration NTSC vertical interval changes so increasing this value to about 0.01mf corrects the low frequency vertical interval problem. The cap in question is a small surface mount cap that is easily destroyed by someone not used to working with surface mount components so be careful! If you're unsure, have someone competent in this area do it for you. It's best to just solder a 0.01mf surface mount cap on top of the existing one without removing the existing cap. **Note**: if you are working with a G1MFG "Gold" or "Platinum" board, this change may already have been made. My Gold board had a 1000pf cap in this location which is still too small so I removed it and replaced it with a 0.01mf cap. I don't know what is in the Platinum boards.

100th Anniversary of SOS

- Denise Camp

SOS - The Ambulance of the Sea

SOS, the international Morse code distress signal, or "ambulance of the sea", has become part of our pop culture. It just celebrated its one hundredth birthday on July 1, 1908. Although it has been replaced as the worldwide distress signal, it's going to be hard replacing it in our everyday language.

It's been associated with lots of phrases and slogans, many designed to help others remember what the signal means such as: *Save Our Souls, Save Our Ship, Save Our Seamen, Survivors On Shore, Save Our Skins and Sink Or Swim.* One favorite that our ATVQ staff recently came up with for the pirate activity off the coast of Africa: "**S**omalians, **O**h **S**h__ !!".

But it's also become a fun way to identify things .There are those who remember the Army's serving up SOS or Slop On a Shingle (yeah, I know but this is a family magazine). There is also the Speed Of Sound, Survivors Of Suicide, and the Same Old Song.

Bringing it up to the computer age there is Software Operating Systems and my favorite, Save Often Stupid. In the music world the young Jonas brothers have a popular CD and music video out called SOS. A lot of states use SOS for the abbreviation when referring to their Secretary of State. And, of course, don't forget about those SOS scrubbing pads.

A friend of mine referred to herself as the family's "SOS" meaning Sibling On Sight when taking care of an aging parent. And the list goes on. It's not going to leave the vernacular of the English language anytime soon. If anyone has more SOS definitions not discussed here, please email them to: *wb8elk@atvquarterly.com.*

Note: *To read about the Ambulance of the sea go to the New York Time Archives, the Sunday Magazine section of February 13, 1910. where some of the first transmissions using SOS was recorded. It was not used first on the Titanic as some would like to believe. Also, Time Online has an article celebrating the SOS one hundreth birthday.*

New Symbol added to Morse Code

Thanks to the International Telecommunications Union (ITU), Morse code has added a new character. No one can remember that happening since before WWII.
The symbol @ has been added due to email addresses. The new sign was dubbed a "commat" and is compromised of the signals for "A" (dot-dash) and "C" (dash-dot-dash-dot) with no space in between.

It seems with the twenty first century e-mail information is exchanged often among ham operators, thus the need for change.

Since "SOS" (three dots, three dashes, three dots) may be the most recognized Morse code signal.... think what communication might have been like if the "commat" had been used in the past.

"SOS Titanic @ iceberg.com"
"SOS Lusitania @ where we were warned not to go.com

Who knows, perhaps in the twenty-second century they might add an exclamation point or even figure out how to tap out emoticons.

ATVQ

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8.7dBd gain with 1.2:1 or better SWR
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Makes a great feed horn on large dishes for EME.
Makes good repeater link antennas, too.
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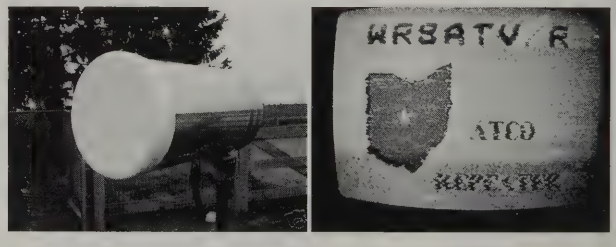

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PC Electronics TVCX-12S

23 cm PLL DOWNCONVERTER BOARD

- Mike Collis WA6SVT

email: wa6svt@atvquarterly.com

I wanted to build up a spare 1.2 GHz receiver for use as a link receiver for ATN system in Southern California and purchased one of PC Electronics TVCX-12S boards (see **Photo 1**). I tested the receiver up at Mt. Wilson where over 20 analog and digital transmitters are located. I was amazed that I could receive the Mt. Wilson repeater, about a mile away, snow free inside the building with a foot long clip lead antenna without any QRM or brute force overload from all the nearby high power TV and FM stations on the same mountain, even with the cover off the receiver.

In this kind of extreme RF environment I usually have issues with a receiver overloading and or intermod QRM, particularly when I take the cover off during testing. Seeing how well the receiver now worked on the bench, I decided to take the receiver up to our Snow Peak repeater and exchanged the 1253 MHz link receiver. Not only was the new receiver more stable, I no longer needed the preamp and removed it.

I ordered another converter board and upgraded the old Snow Receiver and sent it down to San Diego to replace the 1253 MHz link receiver at our Point Loma repeater site. I did not make signal to noise measurements but I do know how well a Downeast Microwave 1.2 GHz preamp helps to make other receivers work at best sensitivity. This downconverter board has a new < .4 dB noise figure HJ-FET preamp stage, which eliminates the need for an external preamp, and is laid out with mostly surface mount components in a size equal to the older VFO down converters.

The board comes set up for either channel 7 or 8 VHF out (for an additional $25, you can special order it with either a channel 3 or 45.75 MHz IF out). For an ATV receiving system that outputs video and audio, you can order the TVCX board with the channel 3 output option and use it with the PC Electronics Rch3 channel 3 receiver (channel 3 input with video and audio out). The TVCX board can also be ordered completely packaged in a case with a frequency and power switch and is also available for the 900 MHz and 430 MHz bands (see **Photo 2**). If you have thought of upgrading your receive station, this new series of boards are the best downconverter boards I have used. The receivers have been working now for a few months perfectly in extremely harsh environments.

The boards models and prices are: TVCX-4S for 70 CM at $99. TVCX-9S for 33CM and TVCX-12S for 23 CM at $109 each. Add $50 more if you want it in a box ready to use.

ATVQ

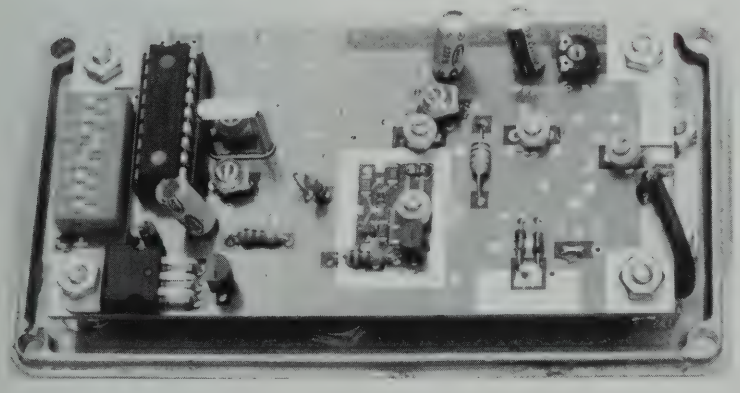

Photo 1. The TVCX downconverter board
(Shown attached to a user-supplied Hammond 1590B box for antenna-mounting applications as described in the following appnote:
http://www.hamtv.com/antmtdown.html

Photo 2. The Plug and Play TVC-12S downconverter box.

TVC-4S for 70cm
TVC-9S for 33 cm
TVC-12S for 23 cm

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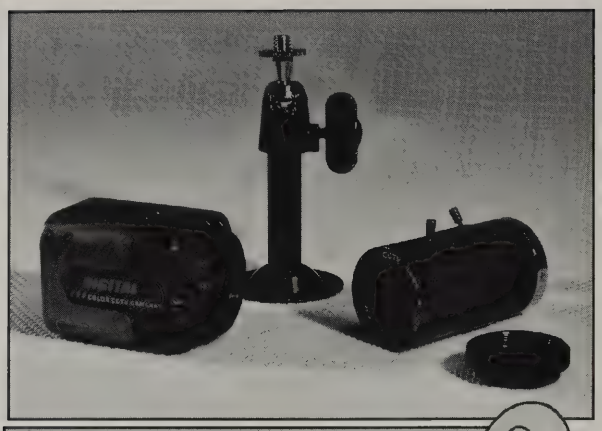
LIMITED SUPPLY



Color CCTV Camera Package

With Varifocal Lens (6-15 mm - f1.4) and Stand!
Color CCTV Camera - DV-4100C
Sharp 1/4 CCD
NTSC
420 Line
1.0 Lux - F1.2
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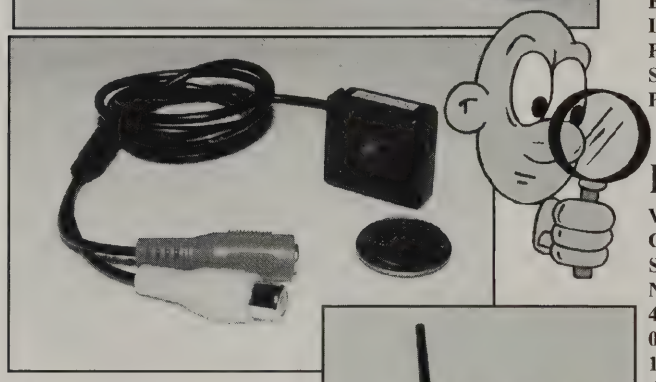
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/60-1/1000,000 Sec
Lens - C/CS Mount - 6-15 mm - f1.4
Power - 12V±10% DC - 100 ma.
Small size - 40x40x54mm
Power supply and cables not included.

Complete package Only
$119.00



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NTSC
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1 Vp-p 75 Ohm
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/60-1/1000,000 Sec
Lens - C/CS Mount- 6-15 mm - f1.4
Power - 12V±10% DC - 100 ma.
Small size - 40x40x54mm
Power supply and cables not included.

Complete package Only
$169.00

Minature Pinhole Color Camera

Color CCTV Camera - DV-3225CP1
Sharp 1/3 CCD
NTSC - 420 Line
1.0 Lux - 1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
3.7 mm cone pinhole lens
Power - 12V±10% DC - 100 ma.
Small size - 25x25 mm
Power supply and cables not included.

Your choice
$109.00
Plus shipping & tax in Illinois

Minature Wireless - 2.4 GHz Color Camera

Color CCTV Camera - DV WX-3334C
Four Frequencies on 2.4 GHz
Sharp 1/3 CCD - NTSC - 420 Line
1.0 Lux - 1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
3.6 mm board lens
Power - 12V±10% DC - 100 ma.
Small size - 34x34 mm
Power supply and cables not included.

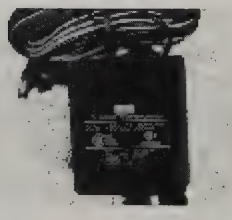
Water-Proof Color Camera

Color CCTV Camera - DV-262CW
Sharp 1/3 CCD
NTSC
420 Line
1.0 Lux
1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
6.0 mm - F1.2 lens
Power - 12V±10% DC - 100 ma.
Small size - 25x25 mm
Power supply and cables not included.

$119.00
Plus shipping & tax in Illinois

If in Illinois - add 7.25% tax
Shipping in USA $10.00 per camera, cable, tripod combination

12 Volt - 300 ma. Wall Transformer
$6.00



Video & Power 2.1 mm Cable - 25 feet RCA to BNC
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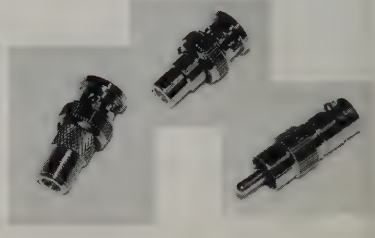
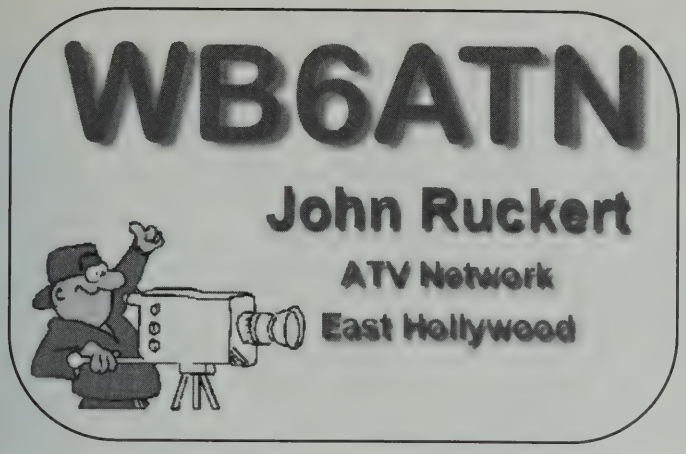
RCA-F to BNC-M
RCA-M to BNC-F
$3.00 ea.





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Kentucky Space ATV Balloon

- Bill Brown WB8ELK *email: wb8elk@atvquarterly.com*

Last July 14th, Kentucky students from over six different colleges and universities launched a balloon payload to the very edge of Space from the Bowling Green, KY airport. The Kentucky Space program allows a select group of students to design and build experiments that will ultimately end up on an orbiting spacecraft in the very near future.

I decided it would be nice to add some ATV to the mix of experiments and thanks to the late night construction efforts of Hank Cantrell W4HTB and Shane Wilson N4XWC the night before the launch, we managed to put together a live camera payload that transmitted FM video on 1255 MHz.

The ATV payload consisted of a long-discontinued TD Systems 1 watt FM transmitter that we mounted inside a styrofoam box. The antenna was an Olde Antenna Labs wheel and Hank supplied a solid state camcorder for the live video. Everything was powered by lithium AA batteries except for the camcorder which used it's internal lithium pack.

Hank supplied a ground station complete with a Yaesu AZ/EL rotator that steered our gain antenna with it's mast-mounted preamp. We were fortunate that the Kentucky Emergency Management van (as well as the Kentucky National Guard van) had decided to participate in the launch as an excercise of their equipment and capabilities. We were able to set up the ATV receive station inside a spacious and air-conditioned van (very handy to have on a hot and steamy July day) that had an operating area that was a ham's dream station. Several VHF and HF radios were at our fingertips along with a high-speed satellite internet connection to relay streaming video from our payload. The van had a pneumatic mast antenna for their command radios that also sported a bird's eye view of the launchsite from a steerable video camera perched at the top of the mast.

The student payload carried APRS on 144.39 MHz, numerous still cameras for horizon, up and down photos and a low-power SAW transmitter circuit for CW telemetry on 434 MHz.

I included a simplex repeater payload on 144.34 MHz using an Alinco DJ-S11T and a Radio Shack simplex repeater module along with a secondary APRS transmitter. Near the bottom of the flight train I also included a FindMeSpot GPS tracker that sends position data up to the orbiting GlobalStar network every 10 minutes. The FindMeSpot is a neat backup GPS unit that will actually transmit it's position to the satellites (and from there to a website) even while upside down on the ground. It's a handy device that can save the day if the APRS units are out of range

Student Jessamyn Delgado buttons up the Balloon-1 payload while Dr. James Lumpp observes on the right.

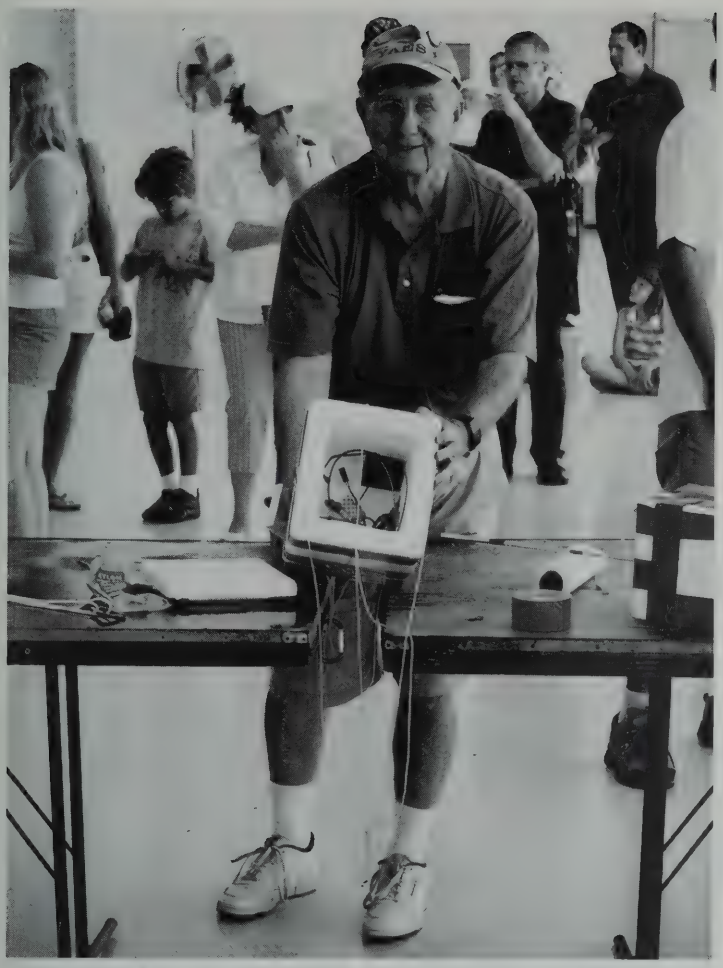


Photo. Hank Cantrell W4HTB demonstrates the ATV payload.

of local digipeaters after the payload has landed after it's flight into the Stratosphere. Check out **http://www.findmespot.com** for more info on this 7 ounce wonder that operates for 2 weeks on just two lithium AA batteries.

Thanks to Hank W4HTB's efforts, we were able to inflate the balloon inside the Fruit of the Loom jet hangar at the Bowling Green KY airport. We had a large crowd of onlookers and even managed to have the kids in attendance build up some ping pong ball experiments (called PearlSats by Bob Twiggs who came up with the idea as a neat way to send up very small student experiments on a balloon - each kid's experiment is strung on the flight line like a string of pearls).

We managed to get everything off the ground, even after Mother Nature huffed and puffed as we brought the balloon outside of the hangar. The launch went well in the breeze with the exception of nearly taking out one of the news cameramen who got a extreme closeup of the launch before one of the payloads made a close encounter with his camera and knocked it (and him) to the ground.

From the air-conditioned comfort of our ATV station inside the van, we had snow-free reception throughout most of the flight.

Bob KA9UVY in Mt. Vernon IL, Farrell W8ZCF in Cincinnati OH and Dick W8RVH in New Carlisle OH were able to receive sync bars but it turns out that the TD Systems transmitter inverts the video so most DX stations weren't able to get a locked image as a result unless they had an invert switch on their receiver.

We had numerous contacts through the 2m simplex repeater on 144.34. Contacts were made with stations in OH, IN, IL, KY, TN, GA and AL....some were able to contact us from their mobile rigs from hundreds of miles away.

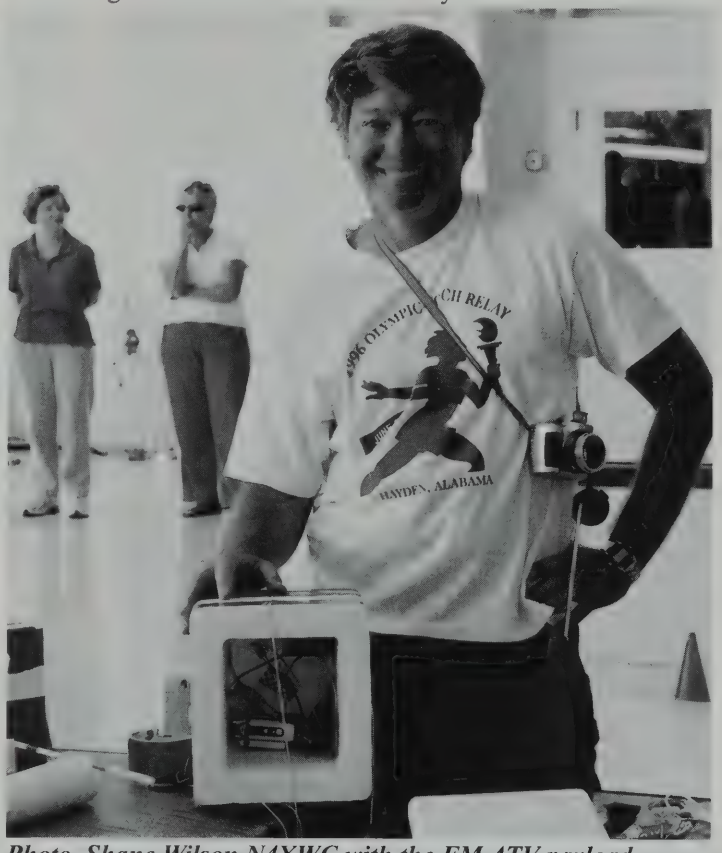
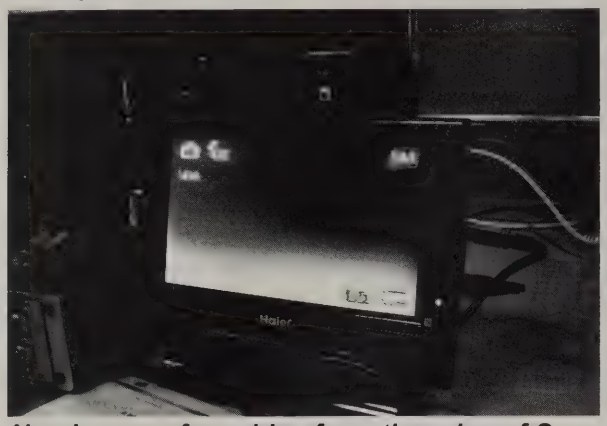


Photo. Shane Wilson N4XWC with the FM ATV payload.

The flight reached it's peak altitude about 90 minutes after launch and parachuted down about 28 miles to the southeast of Bowling Green. It turns out that the FindMeSpot unit saved the day since both APRS trackers dropped out of digipeater range before sending back the final landing spot. Fortunately, as we were plotting the FindMeSpot landing coordinates, we got a phone call from a woman who had just found everything laying neatly in her front yard near her driveway. No tree-climbing or hiking into the wilderness this time.

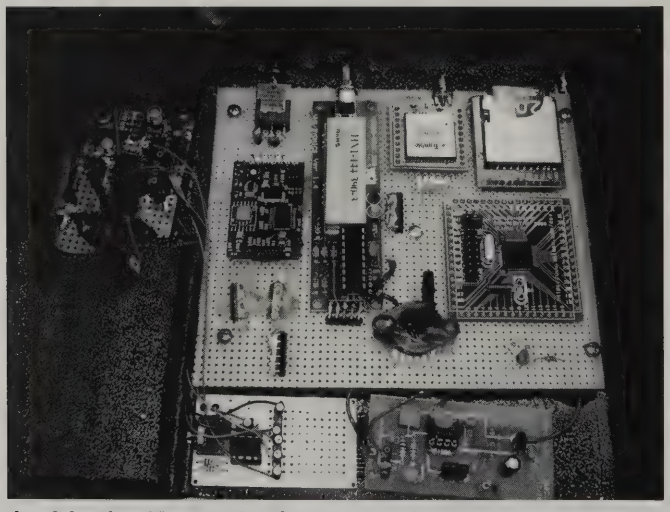
A fun time was had by all and we plan to fly more payloads on the 23 cm band in the future...the next flight may carry aloft a simplex ATV repeater relay which could potentially allow ATVers over several states the ability to contact each other through the balloon repeater.

Check out my website (**www.wb8elk.com**) for future flight announcements and payload details. In March, I'll be attempting a trans-Atlantic flight that may also have some SSTV transmissions from it as well. You can also check (**www.arhab.org**) to see flight announcements from other balloon groups across the country as well as world-wide.



Nearly snow-free video from the edge of Space.

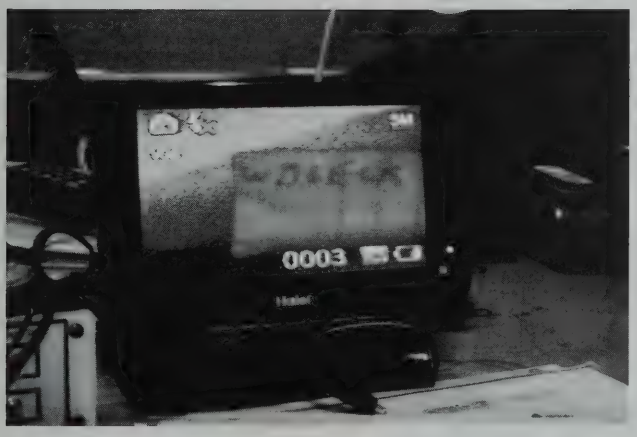
Hank W4HTB mans the ATV ground station inside the command vehicle.



Inside the Kentucky Space student payload.

Teacher Flo Bower helps the kids make PearlSats out of Ping Pong balls.

The chase team tracks down the payloads.



The ATV reception just a few minutes before landing.

The high-speed internet uplink setup inside the Emergency Management command vehicle.

What's New in the Q

- Editorial

As Gene Harlan's health declined, he decided to transition the magazine he loved so dearly over to two very active and long-time ATVers: Mike Collis WA6SVT and Bill Brown WB8ELK.

Mike Collis WA6SVT has been active in ATV since 1976. He has written numerous articles for several magazines and prior to the partnership with Bill Brown as co-publishers of ATVQ, has been a contributing editor.

Mike has engineered and put together several ATV repeaters in the Amateur Television Network and helped others with their ATV stations. He is a broadcast engineer with KCBS/KCAL Television in Los Angeles specializing in transmitter and microwave engineering duties. He is married to his wife Laura and has three girls and one baby boy at home.

Mike has started a new column for ATVQ "The Tech Is In", a place where ATVers can email ATV technical questions. Many of your questions and his answers will be printed in this new column. (**wa6svt@atvquarterly.com**)

Bill Brown WB8ELK has been active in ATV since 1969 and particularly enjoys ATV DXing. He was Editor of ATVQ from the very beginning when Henry Ruh AA9XW first started the publication. Bill was also Managing Editor of 73 Amateur Radio Today magazine and wrote the ATV column in 73 for 10 years. He also writes a column called "Up In The Air" in CQ VHF magazine about amateur radio BalloonSats. Bill was the first to fly a balloon into the stratosphere carrying a live camera ATV transmitter which helped inspire many of the BalloonSat programs that have popped up all over the country and the world. These programs have helped greatly to introduce students to amateur radio (many of them get their ham licenses) as well as learning how to design spacecraft.

This first issue of the new Q is being mailed out a bit late as it has taken quite some time finding the files we needed on Gene's computer and getting used to the quirks of the magazine layout software...we now have an even greater respect for the effort that Gene and Shari put into the publication of each issue. We have kept the best of what Gene has done for ATVQ and added several changes both in content and quality of the material used in printing. We are now using glossy magazine paper inside along with several color pages. It is our desire to produce the best ATV Quarterly Magazine we can for both our subscribers and advertisers, we owe this to Gene, and as personal friends of his, we can say that he loved producing ATVQ. He loved talking to the ATV community and ATV was a very big part of his life.

We encourage you to look at the products advertised and If you order an item from them, please let them know you saw their ad in ATVQ.

We are interested in quality articles on a variety of topics, Bill has prepared a Contributor's Guide on page 33 to help your format your article for submission. We pay $25 for an article that is two pages or more if we print it. (**wb8elk@atvquarterly.com**)

We are interested in news items from your ATV activities like public service ATV club meetings, special events, ATV equipment reviews, how-to and technical articles.

We will also work with other ATV clubs when outside forces threaten our ATV frequencies to voice our opposition and get the information out. ATN has been good at protecting our ATV frequencies and ATVQ would like to also help get the word out and help promote ATV.

Please feel free to email us with your current email and other address changes. We'd like to update our data base with your current email address and callsign as some of our subscriber info does not have an email address or callsign associated with it. We value your privacy and will not sell or give this information to others. Your opinions and suggestions are also welcomed to help us better serve you.

During the upcoming Dayton Hamvention, we will be at the ATV forum and the Friday night ATV dinner and you can contact us at the ATN club booth usually located across from Gordon west's radio school.

New ATVQ website:

http://www.atvquarterly.com

We have a new website, where you can search our Cumulative Index of past issues of ATVQ. CD's are available of past issues and we are in the process of Beta testing the ability to download past issues as well as current ones.

For those who sign up for the free registration login on our website (click on REGISTER), we will give you a free download of a past issue, plus the Winter 2009 issue. We are doing this to honor the memory of Gene Harlan WB9MMM.

You can also print out renewal forms and shortly we will have the ability to renew your subscription or purchase items from our store via PayPal.

We will soon be offering a free cyber download of the current issue of ATVQ (in full color) in addition to the mailed printed edition as part of your regular subscription.

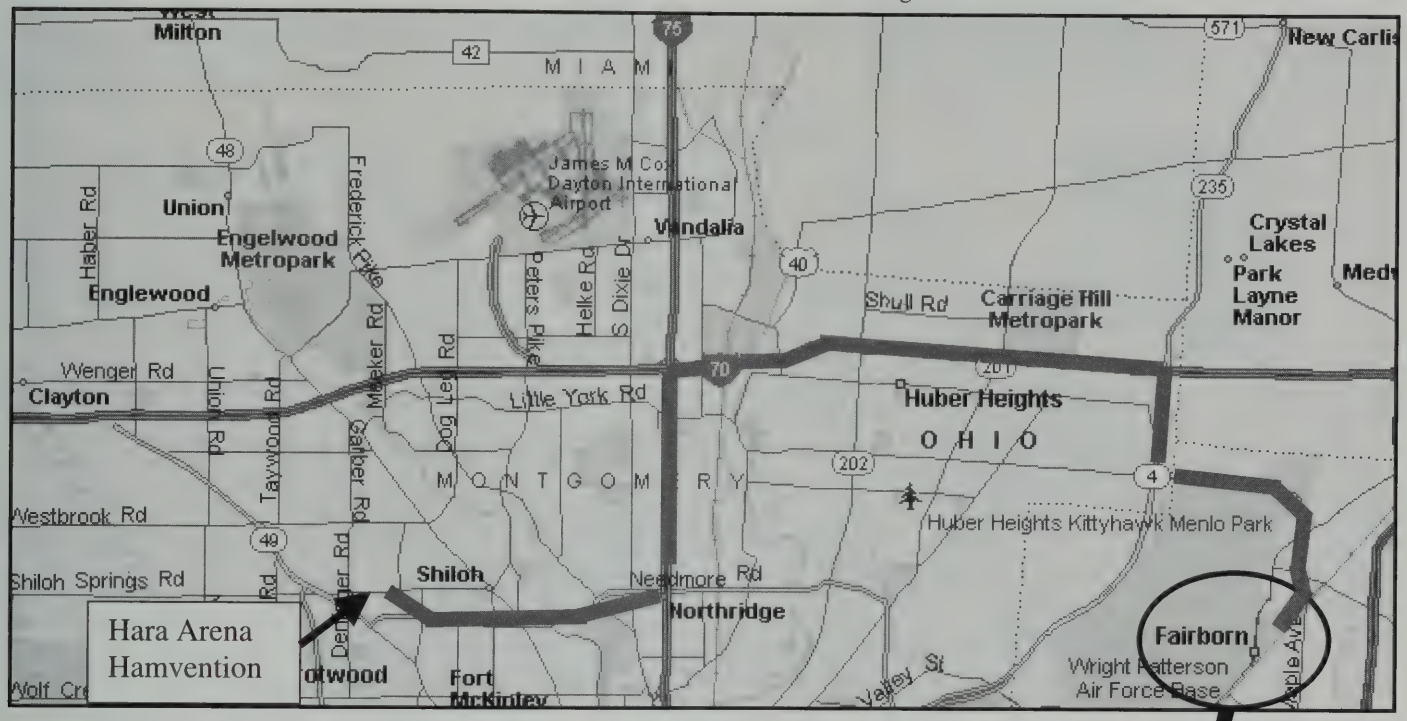
Stay Tuned for more great issues to come,

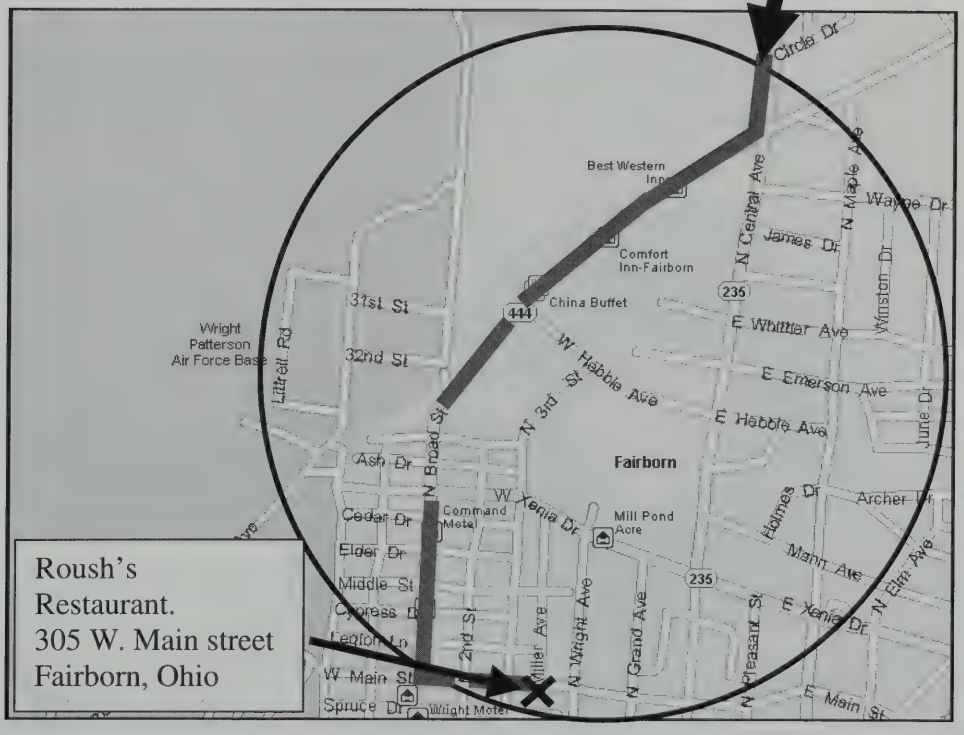
- Bill and Mike

ATV Friday Night Dinner 2009

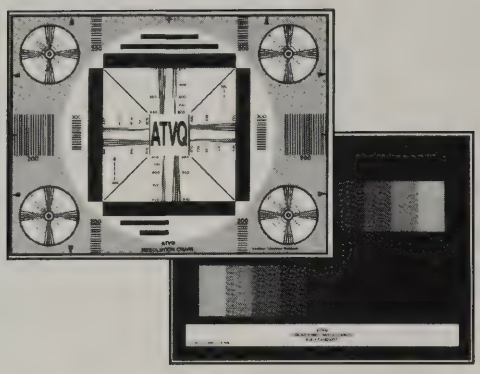
The ATV Friday night dinner and discussion will be held on Hamvention Friday from 7 till 10PM at Roush's Restaurant 305 W Main St. in Fairborn, OH 45324 (at the north end of Wright Patterson airfield runway). The dinner menu is varied, moderately priced and ordered separately. We will enjoy a sit down dinner then have speakers talk about various ATV topics. We will also include door prizes for those present. The meeting terminates at about 10PM.

Directions: Take I-75 north then I-70 east. Exit SR 235/ SR4 south (Fairborn exit). South on 235 about 1 mile then left on Chambersburg Road (east & still SR235 past airport runway). Right on N. Broad Street for about 10 blocks. Turn left on W. Main Street for 3 blocks to Miller Ave. Roush's is on corner of W. Main and Miller. Parking in rear.





FULL COLOR TEST CHART



Four charts including:

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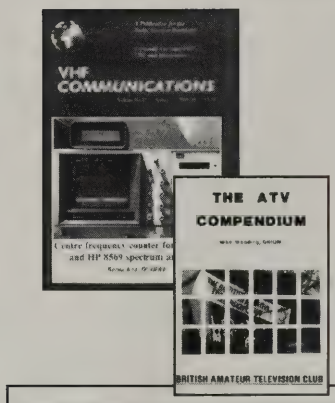

VHF Communications

A quarterly publication from KM Publications in England that is a must for the technically minded. Lots and lots of articles for those that build projects in the VHF and above range.

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The ATV Compendium

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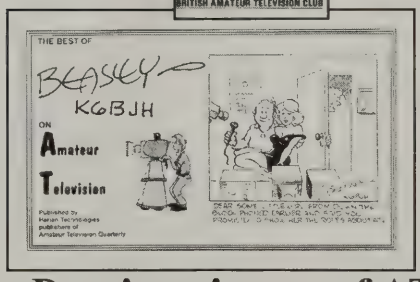

The Best of Beasley - K6BJH - On Amateur Television

A collection of all the cartoons that have appeared in ATVQ over the years plus many more.

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There are many super articles in the previous issues of ATVQ. We keep a list on **www.hampubs.com** of what we still have in paper. You will also find a complete index of articles so you can find just what you want.

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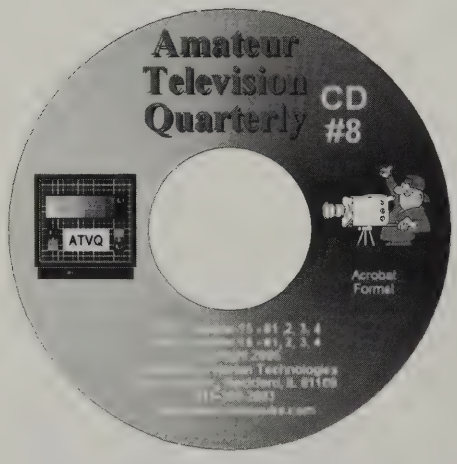

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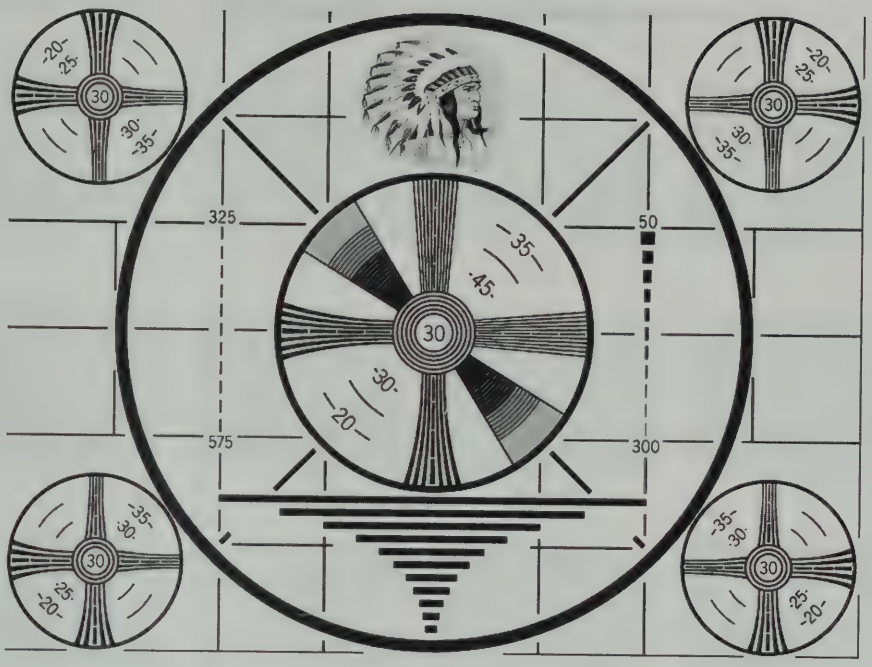
The RCA Indian Head Test Pattern

- Denise Camp

Baby boomers can recall the test patterns on television when shows signed off in the evening. The most famous black and white test pattern may be the "Indian Head" monoscope pattern. It was originated by RCA in 1939.



The test pattern video output was generated by use of a special CRT monoscope camera (the RCA TK-1) that had the test pattern deposited as carbon on a small aluminum plate inside the monoscope. This allowed monitors and TV sets in the studio and at home to be adjusted and calibrated against the standardized video output from the CRT monoscope tube.

You remember the drill. The national anthem would be played, then the test pattern appeared and the humming sound. It was also done in Canada and even Venezuela. Then it was phased out slowly with different test patterns (some available through this magazine) including NBC's own test test pattern in 1947. Today we have twenty-four hour TV thanks or no thanks to infomercials, so test patterns are rarely seen.

The Indian Head card is still considered an icon of that era and shows up in the most interesting places these days. The glass monoscope tubes were probably all thrown away but the original art work was discovered in a dumpster in 1970 and is now sold on the Internet.

Television Sightings:
- 1963 The opening sequence of The Outer Limits
- 1996 Beavis and Butthead
- Ren and Stempy's "Space Madness"
- Back to The Future, the animated series. *Emmett Brown's head is used as the Indian.*
- Alton' Browns cooking show
- Arrested Development used the test pattern when "sudden" nudity occurred.
- Eureka, Season3, Episode 2

Movie Sightings:
- 1972 Cheech and Chong's "The Big Bambu". *Chong is watching a movie about Indians that is really the test pattern.*
- 1998 Pleasantville (behind Don Knotts)
- 2002 Signs
- 2005 Amityville Horror
- 2007 Zodiac

Computer Games:
- The Streets of Sim City
- Fallout

The Internet, items for sale:
- Night lights
- T-shirts
- Jackets
- The original art work

With the disappearance of black and white TVs and analogue systems, it's reassuring that the American Indian Head card is still around--and those of us who remember it!

Interesting Indian Head test pattern weblinks:

Mousepad:
http://www.zazzle.com/indian_head_test_pattern_mousepad-144890886412535796

YouTube has some interesting as well as funny videos (search "Indian Head Test Pattern" or "Test Pattern")

Test Pattern Screensaver:
http://www.artlebedev.com/posters/
http://nyquil.org/uploads/IndianHeadTestPattern16x9.png

Full-Size Drawing:
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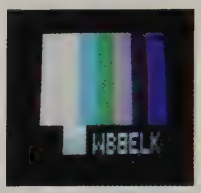
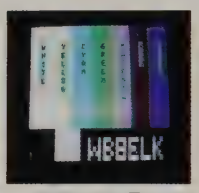
Video ID proms



CBAR 1 ❑



CBAR 2 ❑

CBAR 3 ❑

CBAR 4 ❑

HR 1 ❑

HR 2 ❑

HR 3 ❑

HR 4 ❑

HR 5 ❑

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HR 7 ❑

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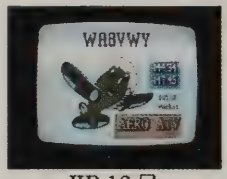
HR 9 ❑

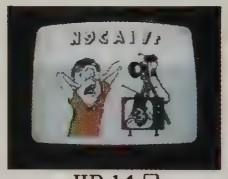
HR 10 ❑

HR 11 ❑

HR 12 ❑



HR 13 ❑


HR 14 ❑

HR 15 ❑
(Choose State)

HR 16 ❑

HR 17 ❑

HR 18 ❑

For the VDG-1 Video ID board

HR 19 ❑

HR 20 ❑

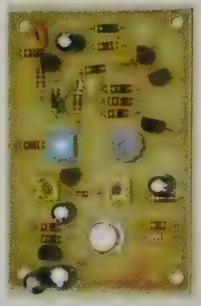
HR 21 ❑

Limited quantities of the original VDG-1 video ID are still available (shipped with one programmed ID prom)

$20 each (includes postage)

Please visit our website:

www.elktronics.com



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Article submissions can be sent to:

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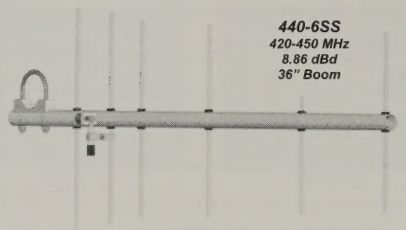
The New M2 AMERICAN Antenna

WE'RE YOUR ATV ANTENNA SOURCE

New licensed Hams will find the ***440-6SS*** a low cost, medium performance antenna to be a great choice for a starter antenna without compromising quality. Built with size and portability in mind, this antenna is great for Field Days, Mountain Topping, Fox Hunts, DXpeditions and ATV use. The antenna breaks down to no more than 36" long, making it a natural for trips. ***MSRP $ 78.00***



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8.86 dBd
36" Boom

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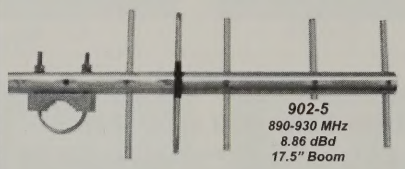

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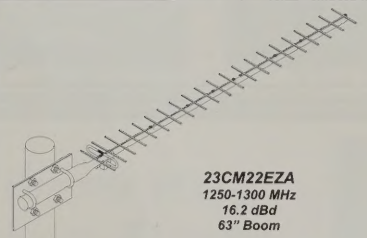
17.5" Boom



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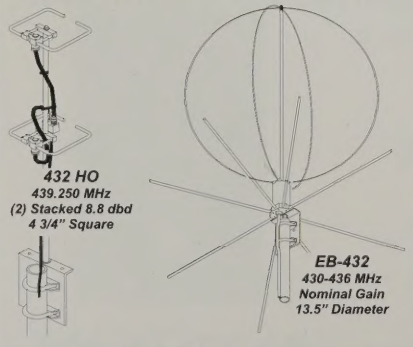

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Ideas

Do you have an idea for an article that you've said to yourself that you wanted to write, but never did. Feel free to check with us to see if it is of interest, or write and send it in. No guarantees that it will get published, but if you don't try, you will never know. I'll be looking to see what you can do!

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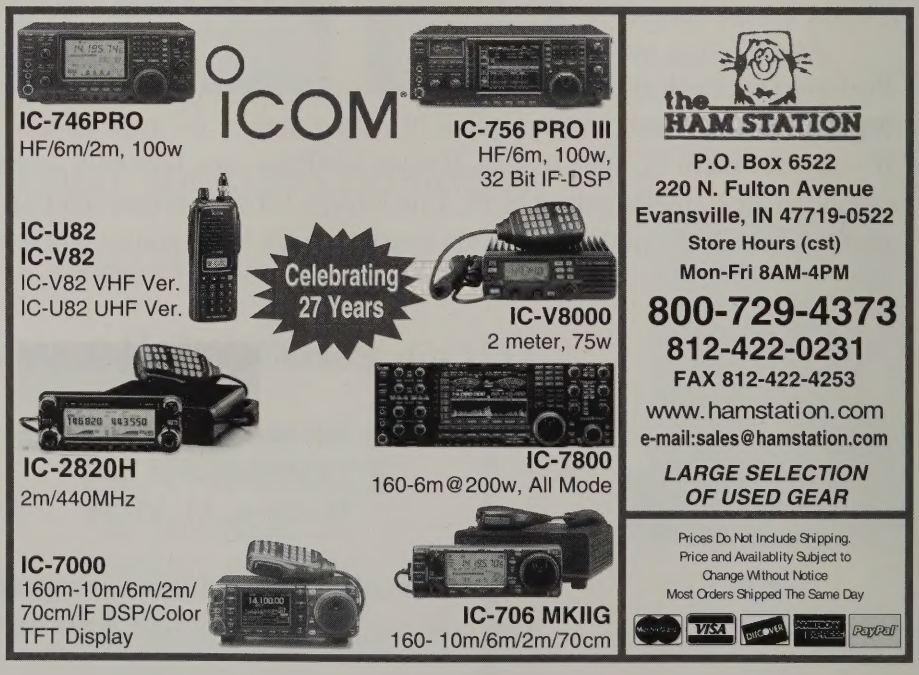

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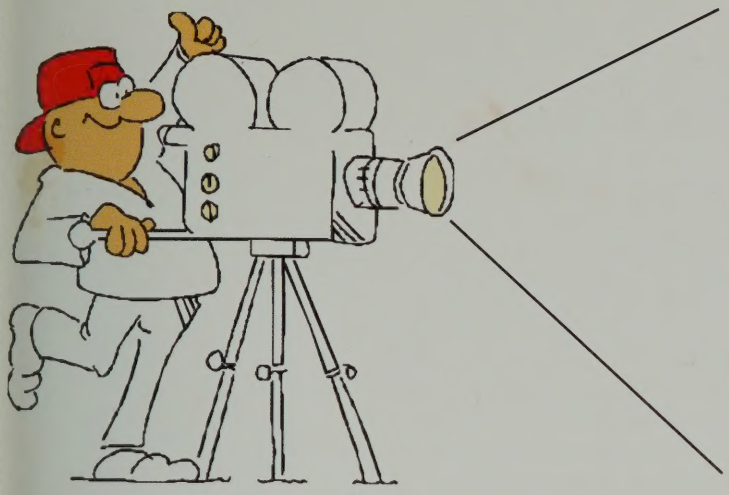

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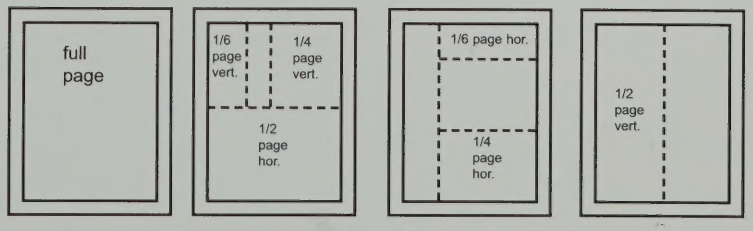

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